



STIC Search Report

EIC 1700

STIC Database Tracking Number: 152651

TO: Satya Sastri
Location: REM 10S24
Art Unit : 1713
May 11, 2005

Case Serial Number: 10/669603

From: Usha Shrestha
Location: EIC 1700
REMSEN 4B28
Phone: 571/272-3519
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Search Notes



STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher* or contact:

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- I am an examiner in Workgroup: Example: 1713
- Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Salya Sashu Examiner #: 79815 Date: 5/5/05
 Art Unit: 1713 Phone Number 30 2-1112 Serial Number: 10/669603
 Mail-Box and Bldg/Room Location: Rem 10D 24 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Positive resist composition and pattern formation method
 Inventors (please provide full names): Fumiyuki Nishiyama,
Kenichiro Sato, Kunihiko Kodama
 Earliest Priority Filing Date: Sept. 30, 2002

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

A positive resist comprising resin with Ia and Ib as shown in claim 1. If too many hits, include I or II or III shown in claim 1. Representative examples for Ia and Ib are attached.

STAFF USE ONLY

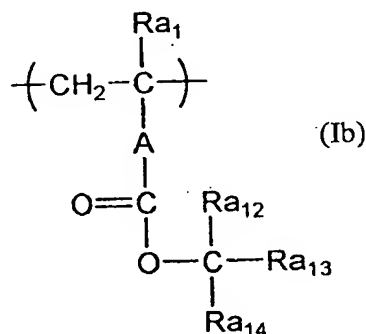
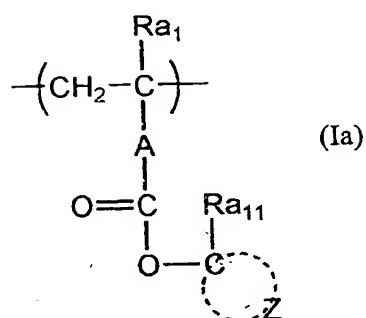
	Type of Search	Vendors and cost where applicable
Searcher: <u>WHA</u>	NA Sequence (#) _____	STN <u>4143.12</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>2</u>	Questel/Orbit _____
Date Searcher Picked Up: <u>5/10/05</u>	Bibliographic _____	Dr.Link _____
Date Completed: <u>5/11/05</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>90</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: <u>30</u>	Patent Family _____	WWW/Internet _____
Online Time: <u>200</u>	Other _____	Other (specify) _____

What is claimed is:

1. A positive resist composition comprising:

(A) a resin comprising a repeating unit represented by the following formula (Ia) and a repeating unit represented by the following formula (Ib), which increases the solubility in an alkali developing solution by the action of an acid:

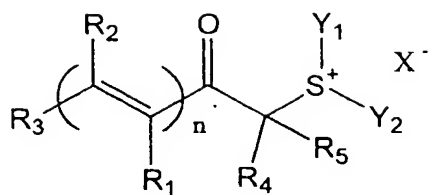
(B) a compound represented by the following formula (I), (II) or (III):



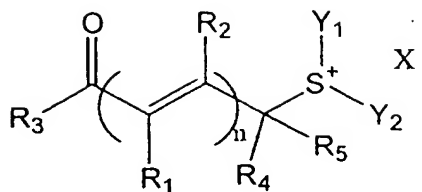
wherein Ra_1 each independently represents a hydrogen atom or an alkyl group, and A each independently represents a linkage group,

Ra_{11} represents an alkyl group containing 1 to 4 carbon atoms, Z represents an atom group forming an alicyclic hydrocarbon group together with the carbon atom,

Ra_{12} to Ra_{14} each independently represents a hydrocarbon group, with the proviso that at least one among Ra_{12} , Ra_{13} and Ra_{14} represents an alicyclic hydrocarbon group:



(I)



(II)

wherein R_1 to R_3 , which may be the same or different, each represents a hydrogen atom, an alkyl group, an alkenyl group, an aryl group or an alkoxy group,

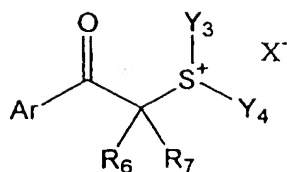
R_4 and R_5 , which may be the same or different, each represent a hydrogen atom, a cyano group, an alkyl group, an aryl group or an alkoxy group,

Y_1 and Y_2 , which may be the same or different, each represents an alkyl group, an aryl group, an aralkyl group or a hetero atom-containing aromatic group,

n represents an integer of 1 to 4, and with the proviso that when n is 2 or more, a plurality of R_1 s may be the same or different and a plurality of R_2 s may also be the same or different, any two or more among R_1 to R_3 , R_4 , R_5 , Y_1 and Y_2 may be bonded with each other to form a cyclic structure,

two or more of structures represented by formula (I) or (II) may be present by being bonded to each other via one or more of a linkage group at any sites of R_1 s, R_2 s, R_3 s, R_4 s, R_5 s, Y_1 s and Y_2 s,

X^- represents a non-nucleophilic anion:



(III)

wherein Ar represents an aryl group or a hetero atom-containing aromatic group,

R₆ represents a hydrogen atom, a cyano group, an alkyl group or an aryl group,

R₇ represents an alkyl group or an aryl group,

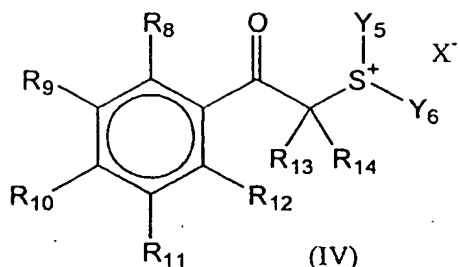
Y₃ and Y₄, which may be the same or different, each represents an alkyl group, an aryl group, an aralkyl group or a hetero atom-containing aromatic group, or Y₃ and Y₄ may be bonded with each other to form a ring,

Ar and at least either Y₃ or Y₄ may be bonded with each other to form a ring,

Ar and R₆ may be bonded with each other to form a ring, or two or more of structures represented by formula (III) may be present by being bonded to each other via one or more of a linkage group at Ar sites, either R₆ or R₇ sites, or either Y₃ or Y₄ sites, and

X⁻ represents a non-nucleophilic anion.

2. The composition according to claim 1, wherein the compound (B) represented by formula (III) is a compound represented by the following formula (IV):



wherein R_8 to R_{12} , which may be the same or different, each represents a hydrogen atom, a nitro group, a halogen atom, an alkyl group, an alkoxy group, an alkyloxycarbonyl group, an aryl group or an acylamino group, with the proviso that at least two of R_8 to R_{12} may be bonded with each other to form a ring structure,

R_{13} represents a hydrogen atom, a cyano group, an alkyl group or an aryl group,

R_{14} represents an alkyl group or an aryl group,

Y_5 and Y_6 , which may be the same or different, each represents an alkyl group, an aryl group, an aralkyl group or a hetero atom-containing aromatic group, or Y_5 and Y_6 may be bonded with each other to form a ring, or at least one of R_8 to R_{12} and at least either Y_5 or Y_6 may be bonded with each other to form a ring, or at least one of R_8 to R_{12} may be bonded with R_{13} to form a ring,

two or more of structures represented by formula (IV) may be present by being bonded to each other via one or more of a linkage group at any sites of R_8 s to R_{14} s or at either Y_5 sites or Y_6 sites, and

X⁻ represents a non-nucleophilic anion.

3. The composition according to claim 1, further comprising (C) a fluorine-based and/or silicon-based surfactant.

4. The composition according to claim 1, further comprising (D) an organic basic compound.

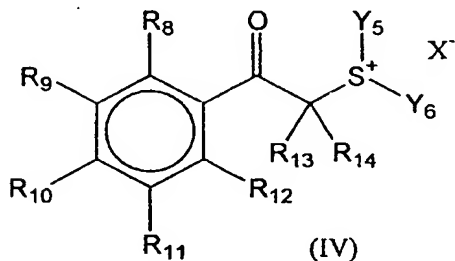
5. The composition according to claim 1, wherein the component (B) includes: at least one of the compounds represented by the formulae (I) and (II); and the compound represented by the formula (III).

6. The composition according to claim 1, wherein the amount of the repeating unit represented by the formula (Ia) and the repeating unit represented by the formula (Ib) is from 30 to 70 mole % based on the component (a).

7. The composition according to claim 1, wherein the content of the compound represented by the formula (I) or (II) is from 0.1 to 20 % by weight based on a solids contents in the composition.

8. A method for forming a pattern, which comprises forming a resist film comprising the composition described in claim 1, exposing the resist film upon irradiation with the actinic rays or a radiation, and subsequently developing the resist film.

9. The method for forming a pattern according to claim 8, wherein the compound (B) represented by formula (III) is a compound represented by the following formula (IV):



wherein R_8 to R_{12} , which may be the same or different, each represents a hydrogen atom, a nitro group, a halogen atom, an alkyl group, an alkoxy group, an alkyloxycarbonyl group, an aryl group or an acylamino group, with the proviso that at least two of R_8 to R_{12} may be bonded with each other to form a ring structure,

R_{13} represents a hydrogen atom, a cyano group, an alkyl group or an aryl group,

R_{14} represents an alkyl group or an aryl group,

Y_5 and Y_6 , which may be the same or different, each represents an alkyl group, an aryl group, an aralkyl group or

a hetero atom-containing aromatic group, or Y_5 and Y_6 may be bonded with each other to form a ring, or at least one of R_8 to R_{12} and at least either Y_5 or Y_6 may be bonded with each other to form a ring, or at least one of R_8 to R_{12} may be bonded with R_{13} to form a ring,

two or more of structures represented by formula (IV) may be present by being bonded to each other via one or more of a linkage group at any sites of R_8 s to R_{14} s or at either Y_5 sites or Y_6 sites, and

X^- represents a non-nucleophilic anion.

10. The method for forming a pattern according to claim 8, wherein the composition further comprises (C) a fluorine-based and/or silicon-based surfactant.

11. The method for forming a pattern according to claim 8, wherein the composition further comprises (D) an organic basic compound.

12. The method for forming a pattern according to claim 8, wherein the component (B) includes: at least one of the compounds represented by the formulae (I) and (II); and the compound represented by the formula (III).

13. The method for forming a pattern according to claim 8, wherein the amount of the repeating unit represented by the formula (Ia) and the repeating unit represented by the formula (Ib) is from 30 to 70 mole % based on the component (a).

14. The method for forming a pattern according to claim 8, wherein the content of the compound represented by the formula (I) or (II) is from 0.1 to 20 % by weight based on a solids contents in the composition.

Substitute for Form 1449 A & B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i>				<i>Complete if Known</i>	
				Application Number	Not yet assigned
				Confirmation Number	Unknown
				Filing Date	September 25, 2003
				First Named Inventor	Fumiyuki NISHIYAMA
				Art Unit	Unknown
				Examiner Name	Unknown
Sheet	1	of	1	Attorney Docket Number	Q77490

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Document Number		Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
		Number	Kind Code ² (if known)		
		US			
		US			
		US			
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FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No. ¹	Foreign Patent Document			Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Translation ⁶
		Country Code ³	Number ⁴	Kind Code ⁵ (if known)			
		JP	2000-292917	(A)	10/20/2000	JAPAN	
		JP	2001-294570	(A)	10/23/2001	JAPAN	
		JP	11-119434	(A)	04/30/1999	JAPAN	
		JP	9-73173	(A)	03/18/1997	JAPAN	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city, and/or country where published.	Translation ⁶

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² See Kind Codes of USPTO Patent Documents at www.uspto.gov, MPEP 901.04 or in the comment box of this document. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST. 3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to indicate here if English language Translation is attached.



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(19) **United States**

(12) **Patent Application Publication**

Nishiyama et al.

(10) **Pub. No.: US 2004/0063827 A1**

(43) **Pub. Date:**

Apr. 1, 2004

(54) **POSITIVE RESIST COMPOSITION AND
PATTERN FORMATION METHOD USING
THE SAME**

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Kenichiro Sato, Shizuoka (JP);
Kunihiko Kodama, Shizuoka (JP)**

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(73) **Assignee: FUJI PHOTO FILM CO., LTD.**

(21) **Appl. No.: 10/669,603**

(22) **Filed: Sep. 25, 2003**

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Sep. 30, 2002 (JP) P. 2002-287393

Publication Classification

(51) **Int. Cl.⁷ C08K 5/41**

(52) **U.S. Cl. 524/155**

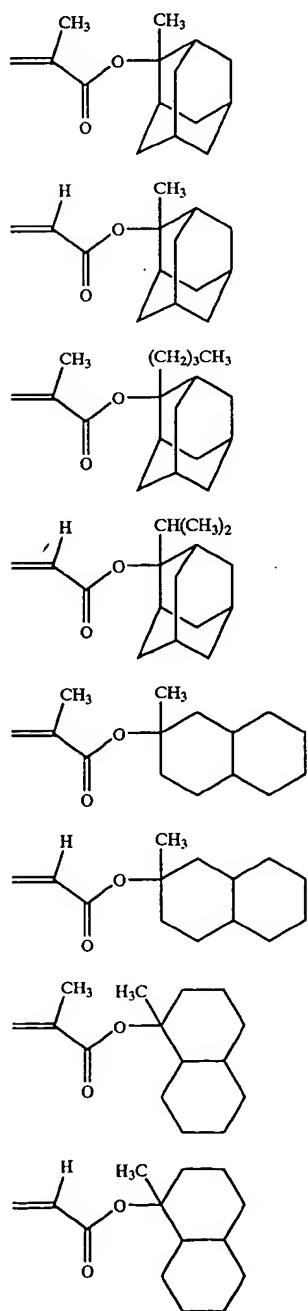
(57) **ABSTRACT**

A positive resist composition comprising: (A) a resin having alicyclic hydrocarbon groups in side chains, containing specified two types of repeating units, which increases the solubility in an alkali developing solution by the action of an acid; and (B) a particular sulfonium compound having a specified structure and capable of generating an acid upon irradiation with an actinic ray or radiation.

Instant application

a propyl group and an isopropyl group. Examples of a substituent the substituted alkyl group has include a hydroxyl group, a halogen atom and an alkoxy group. Examples of the alkoxy group include alkoxy groups including 1 to 4 carbon atoms such as a methoxy group, an ethoxy group, a propoxy group and a butoxy group.

[0079] Examples of monomers corresponding to repeating units represented by formulae (Ia) and (Ib) respectively are illustrated below:



Ia-1

Ia-2

Ia-3

Ia-4

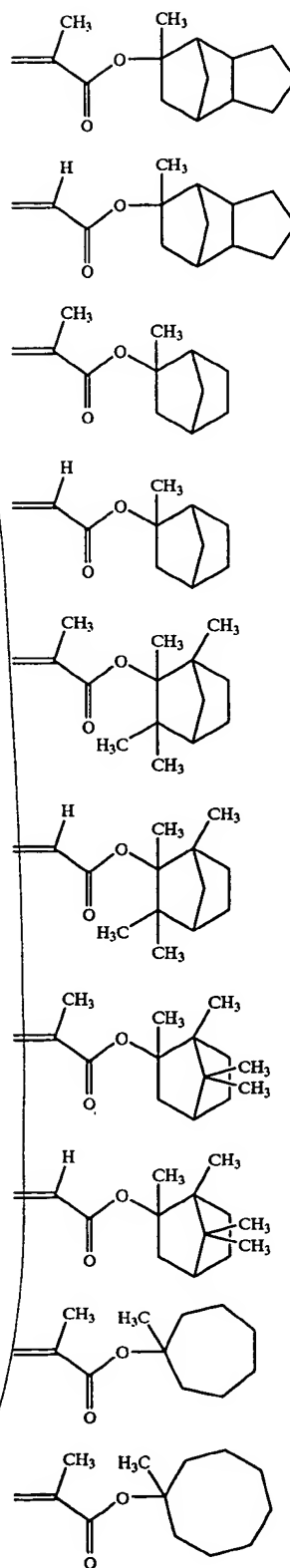
Ia-5

Ia-6

Ia-7

Ia-8

-continued



Ia-9

Ia-10

Ia-11

Ia-12

Ia-13

Ia-14

Ia-15

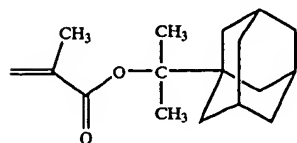
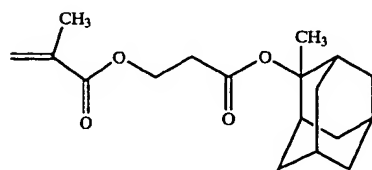
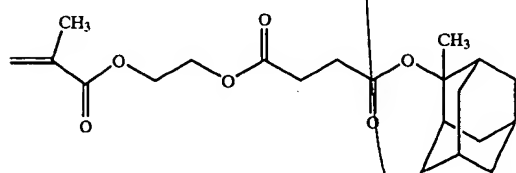
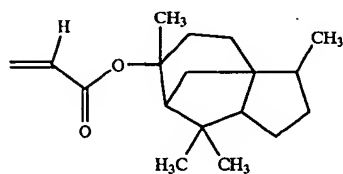
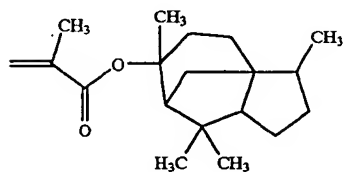
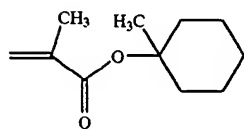
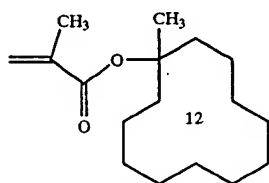
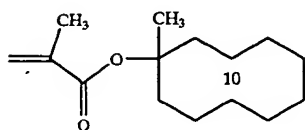
Ia-16

Ia-17

Ia-18

1a⁸

-continued



1a-19

1a-20

1a-21

1a-22

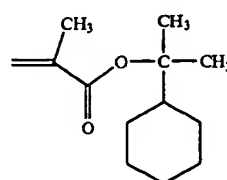
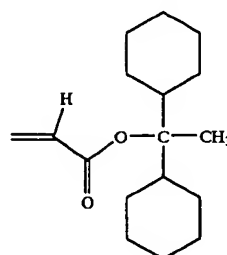
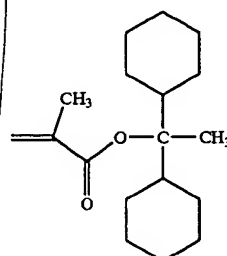
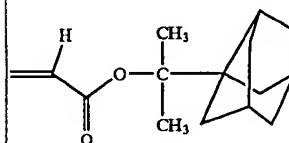
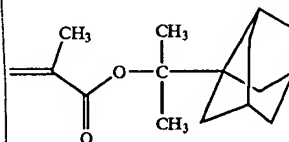
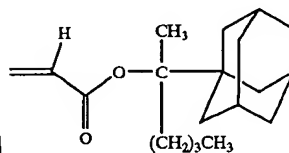
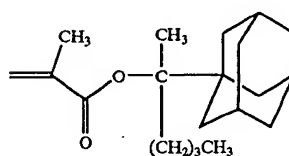
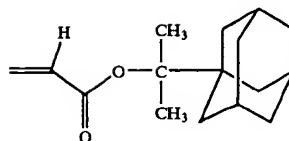
1a-23

1a-24

1a-25

1b-1

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1b-2

1b-3

1b-4

1b-5

1b-6

1b-7

1b-8

1b-9

=> fil reg
FILE 'REGISTRY' ENTERED AT 12:38:09 ON 11 MAY 2005

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FILE 'LREGISTRY' ENTERED AT 09:29:06 ON 11 MAY 2005

L1 STR
L2 STR L1

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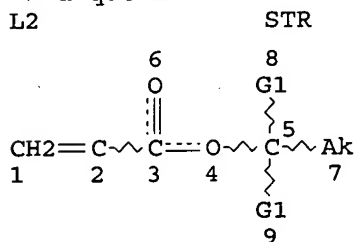
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L4 2 S L1 AND L2 AND L3
L5 STR L1
L6 8 S L5 AND L2 AND L3
L7 258 S L5 AND L2 AND L3 FUL
SAV L7 SAS603/A

FILE 'HCAPLUS' ENTERED AT 10:22:58 ON 11 MAY 2005

L8 197 S L7
L9 1 S US20040063827/PN
L10 1 S L9 AND L8
L11 180 S L8 (L) ?RESIST?
L12 153 S L8 (L) PREP/RL
L13 138 S L12 (L) ?RESIST?
L14 136 S L13 AND PHOTO?/SC, SX
L15 16 S L14 AND POSITIV? (A) RESIST?
L16 42 S L8 AND POSITIV? (2A) RESIST?
L17 41 S L16 AND PHOTO?/SC, SX
L18 41 S L17 OR L15

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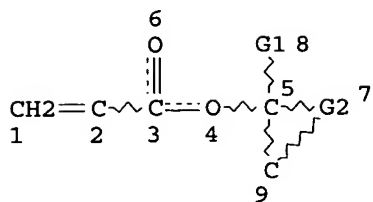
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VAR G1=AK/CB
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE
L3 SCR 2043
L5 STR



VAR G1=ME/ET/I-PR/N-PR/I-BU/T-BU/N-BU/S-BU

REP G2=(1-5) C

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 9

STEREO ATTRIBUTES: NONE

L7 258 SEA FILE=REGISTRY SSS FUL L5 AND L2 AND L3

L8 197 SEA FILE=HCAPLUS ABB=ON PLU=ON L7

=> fil hcap

FILE 'HCAPLUS' ENTERED AT 12:38:42 ON 11 MAY 2005

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

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=> => d l18 1-41 ibib abs fhitr hitind

L18 ANSWER 1 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:235495 HCAPLUS

DOCUMENT NUMBER: 142:306451

TITLE: Storage-stable positive photoresists for F2
excimer laser lithography and patterning
thereof

INVENTOR(S): Sasaki, Tomoya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 98 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2005070327	A2	20050317	JP 2003-299022	2003 0822
PRIORITY APPLN. INFO.:			JP 2003-299022	2003 0822

AB The photoresists containing (A) fluororesins (preferable Markush given) having F-substituted main chain or sidechains and increasing alkali solubility by acid action and (B) photoacid generators and satisfying water content $\leq 0.3\%$; are pasted, exposed, and developed to form patterns with low line-edge roughness. The resin A may be replaced by a combination of alkali-soluble fluororesins and nonpolymeric dissoln. inhibitors.

IT 847599-64-8
(chemical amplified pos. resists containing decomposition-resistant fluororesins for F2 excimer laser lithog.)

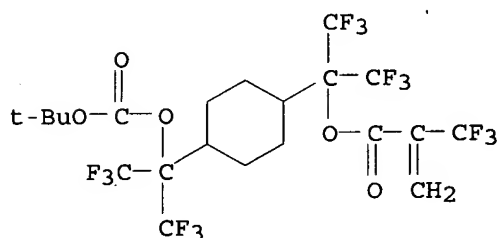
RN 847599-64-8 HCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 1-[4-[1-[(1,1-dimethylethoxy)carbonyl]oxy]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl]cyclohexyl]-2,2,2-trifluoro-1-(trifluoromethyl)ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-(trifluoromethyl)-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 610300-99-7

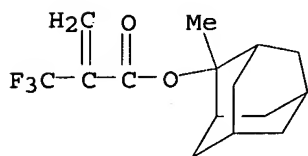
CMF C21 H21 F15 O5



CM 2

CRN 188739-86-8

CMF C15 H19 F3 O2



IC ICM G03F007-039
ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT Photolithography
Positive photoresists
(chemical amplified pos. resists containing decomposition-resistant fluororesins for F2 excimer laser lithog.)

IT Fluoropolymers, uses
(chemical amplified pos. resists containing

decomposition-resistant fluororesins for F2 excimer laser lithog.)

IT 370866-39-0P 762274-01-1P
(chemical amplified **pos. resists** containing
decomposition-resistant fluororesins for F2 excimer laser lithog.)

IT 370102-83-3 406702-00-9 430437-18-6 585573-50-8
607710-65-6 607710-77-0 610300-98-6 610301-01-4
610301-04-7 672937-76-7 677354-71-1 731861-92-0
731861-93-1 732299-47-7 762275-99-0 764717-25-1
836614-75-6 847599-64-8 847599-66-0 847599-67-1
847599-68-2 847599-69-3
(chemical amplified **pos. resists** containing
decomposition-resistant fluororesins for F2 excimer laser lithog.)

IT 457096-61-6 847612-70-8
(dissoln. inhibitors; chemical amplified **pos. resists** containing decomposition-resistant fluororesins for F2 excimer laser lithog.)

IT 144317-44-2 227199-92-0 301664-71-1 347193-28-6
389859-76-1 470482-89-4 610301-47-8
(photoacid generators; chemical amplified **pos. resists** containing decomposition-resistant fluororesins for F2 excimer laser lithog.)

L18 ANSWER 2 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:182220 HCAPLUS

DOCUMENT NUMBER: 142:287809

TITLE: Positive photoresist composition and pattern formation method using the same

INVENTOR(S): Mizutani, Kazuyoshi; Sasaki, Tomoya; Kanna, Shinichi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 78 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
US 2005048402	A1	20050303	US 2004-929443	2004 0831
JP 2005107476	A2	20050421	JP 2004-47404	2004 0224
EP 1515186	A2	20050316	EP 2004-20764	2004 0901

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
EE, HU, PL, SK, HR

PRIORITY APPLN. INFO.: JP 2003-308699 A 2003
0901

JP 2003-318310 A 2003
0910

JP 2004-47404

A

2004

0224

AB The invention relates to a **pos. resist** composition comprising (A) a resin that is decomposed by the action of an acid to increase solubility in an alkali developing solution and includes a specific repeating unit and (B) a compound that generates an acid upon irradiation of an actinic ray or radiation, and a pattern formation method using the **pos. resist** composition

IT 847254-05-1P

(**pos. resist** composition and pattern formation method using the same)

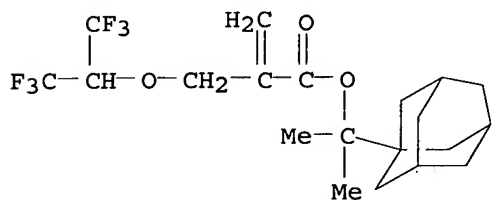
RN 847254-05-1 HCAPLUS

CN 2-Propenoic acid, 2-fluoro-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-[[2,2,2-trifluoro-1-(trifluoromethyl)ethoxy]methyl]-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 847254-04-0

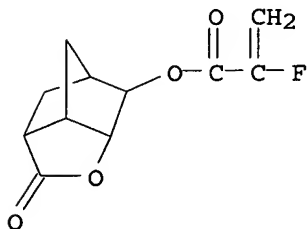
CMF C20 H26 F6 O3



CM 2

CRN 847253-99-0

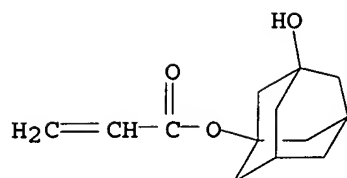
CMF C11 H11 F O4



CM 3

CRN 216581-76-9

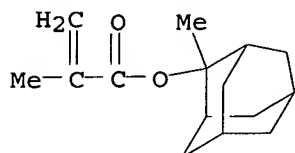
CMF C13 H18 O3



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03C001-76

INCL 430281100; 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 37

IT Photolithography

Positive photoresists

(pos. resist composition and pattern formation
method using the same)

IT 75-65-0, tert-Butyl alcohol, reactions 108-24-7, Acetic
anhydride 920-66-1 2170-03-8, Itaconic anhydride 81290-20-2,
Trifluoromethyltrimethylsilane 847253-96-7

(pos. resist composition and pattern formation
method using the same)

IT 847253-80-9P 847253-81-0P 847253-82-1P 847253-98-9P

(pos. resist composition and pattern formation
method using the same)

IT 428516-13-6P 847253-83-2P 847253-85-4P 847253-89-8P

847253-93-4P 847253-94-5P 847253-95-6P 847254-01-7P

847254-03-9P **847254-05-1P** 847254-07-3P 847254-09-5P

847254-11-9P 847254-12-0P 847254-13-1P 847254-15-3P

847254-17-5P 847254-19-7P 847254-21-1P 847254-24-4P

847254-25-5P 847254-27-7P 847359-98-2P

(pos. resist composition and pattern formation
method using the same)

L18 ANSWER 3 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:98959 HCAPLUS

DOCUMENT NUMBER: 142:207616

TITLE: Positive resist

composition and method of forming resist
pattern using the same

INVENTOR(S): Sasaki, Tomoya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 60 pp.

DOCUMENT TYPE: CODEN: USXXCO
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: 1 English
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005026073	A1	20050203	US 2004-897112	2004 0723
JP 2005049695	A2	20050224	JP 2003-282916	2003 0730
EP 1505440	A2	20050209	EP 2004-17840	2004 0728

EP 1505440 A3 20050223
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
 MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
 EE, HU, PL, SK, HR

PRIORITY APPLN. INFO.: JP 2003-282916 A 2003
 0730

AB A pos. resist composition comprises: (A) a fluorine atom-containing resin; (B) a compound generating an acid upon irradiation with an actinic ray; and (C) a non-polymer dissoln. inhibitor having a specific structure.

IT 836614-65-4P
 (pos. resist composition for forming resist pattern containing)

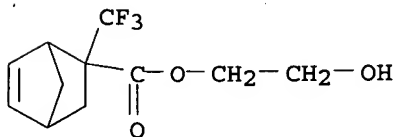
RN 836614-65-4 HCAPLUS

CN Bicyclo[2.2.1]hept-5-ene-2-carboxylic acid, 2-(trifluoromethyl)-, 2-hydroxyethyl ester, polymer with 1,1-dimethylethyl 2-propenoate and 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-(trifluoromethyl)-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 630115-61-6

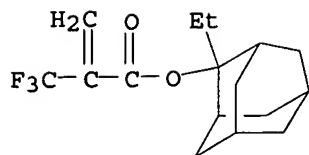
CMF C11 H13 F3 O3



CM 2

CRN 444168-44-9

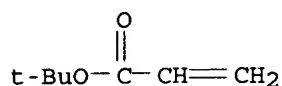
CMF C16 H21 F3 O2



CM 3

CRN 1663-39-4

CMF C7 H12 O2



IC ICM G03C001-76

INCL 430270100

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38

ST pos resist compn pattern

IT Resists

(pos.-working; pos. resist composition
for forming resist pattern)

IT 836614-82-5P 836614-84-7P 836648-89-6P 836648-90-9P
836648-91-0P 836648-93-2P 836648-94-3P 836648-95-4P
836648-96-5P 836648-97-6P

(dissoln. inhibitor; pos. resist composition for
forming resist pattern containing)

IT 153698-46-5 309751-48-2 341979-02-0 365971-62-6
594865-71-1

(photoacid generator; pos. resist composition
for forming resist pattern containing)

IT 731861-92-0P 732299-46-6P 732299-47-7P 762274-06-6P
836614-59-6P 836614-61-0P 836614-63-2P 836614-65-4P
836614-67-6P 836614-69-8P 836614-71-2P 836614-75-6P
836648-86-3P 836648-88-5P

(pos. resist composition for forming
resist pattern containing)

IT 365568-55-4

(preparation of dissoln. inhibitor for pos. resist
composition)

IT 679804-74-1P

(preparation of dissoln. inhibitor for pos. resist
composition)

L18 ANSWER 4 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2005:78066 HCAPLUS

DOCUMENT NUMBER: 142:186539

TITLE: Positive photosensitive composition and method
of forming resist pattern

INVENTOR(S): Kodama, Kuniyiko

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 48 pp.

DOCUMENT TYPE: CODEN: USXXCO
 LANGUAGE: Patent
 FAMILY ACC. NUM. COUNT: 1 English
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2005019690	A1	20050127	US 2004-895824	2004 0722
EP 1505439	A2	20050209	EP 2004-17305	2004 0722
EP 1505439	A3	20050420		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, PL, SK, HR				
JP 2005055890	A2	20050303	JP 2004-215380	2004 0723
PRIORITY APPLN. INFO.:				JP 2003-278995 A
				2003 0724

AB A pos. photosensitive composition comprises: (A) 5 to 20 parts by weight of the total amount of at least one compound that generates an acid upon irradiation with an actinic ray; and (B) 100 parts by weight of the total amount of at least one fluorine atom-containing resin having a group that increases a solubility of the resin in an alkaline developer by the action of an acid.

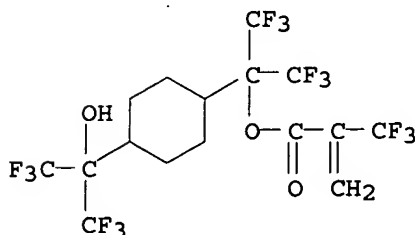
IT 607710-72-5
 (resin; pos. photosensitive composition for forming resist pattern containing)

RN 607710-72-5 HCAPLUS
 CN 2-Propenoic acid, 2-(trifluoromethyl)-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 2,2,2-trifluoro-1-[4-[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl]-1-(trifluoromethyl)ethyl 2-(trifluoromethyl)-2-propenoate (9CI) (CA INDEX NAME)

CM 1

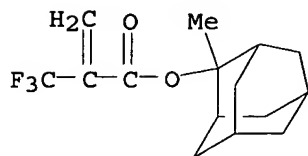
CRN 479072-83-8

CMF C16 H13 F15 O3



CM 2

CRN 188739-86-8
 CMF C15 H19 F3 O2



IC ICM G03C001-76

INCL 430270100

CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38

ST **pos** photosensitive compn **resist** pattern

IT 143336-94-1 262617-13-0 370102-83-3 370866-39-0
 406702-00-9 430437-18-6 585573-50-8 607710-65-6
 607710-68-9 607710-71-4 **607710-72-5** 607710-73-6
 610300-97-5 610300-98-6 610301-01-4 677354-71-1
 679804-77-4 680603-11-6 731862-28-5 732299-47-7
 762274-02-2 762274-05-5 762274-06-6 762275-99-0
 764717-25-1

(resin; pos. photosensitive composition for forming resist pattern
 containing)

L18 ANSWER 5 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:1038483 HCAPLUS

DOCUMENT NUMBER: 142:30016

TITLE: Photo-acid generation type **positive**
 -working **resist** composition

INVENTOR(S): Sato, Kenichiro; Kodama, Kunihiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 62 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004341061	A2	20041202	JP 2003-134805	

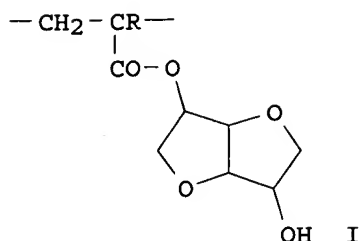
2003
 0513

PRIORITY APPLN. INFO.: JP 2003-134805

2003
 0513

OTHER SOURCE(S): MARPAT 142:30016

GI



AB The disclosed resist comps. contain a polymer having structural repeating unit I (R = Me, H) which dissolves in an alkaline developer upon reaction with an acid, and a sulfonium salt of formula $R_1(CR_2:CR_3)nCOCR_4R_5S+YY_1X^-$ or $R_1CO(CR_2:CR_3)nCR_4R_5S+YY_1X^-$ ($R_1-3 = H, alkyl, alkenyl, aryl, alkoxy$; $R_4, R_5 = H, cyano, alkyl, aryl, alkoxy$; $Y, Y_1 = alkyl, aryl, aralkyl, heterocyclyl$; $n = 1-4$; $X^- = nonnucleophilic anion$) which generates an acid upon irradiation with actinic radiation. The resist comps. show good sensitivity towards ArF excimer laser beam.

IT 797031-34-6P
(photoacid generation type **pos.**-working
resist composition containing)

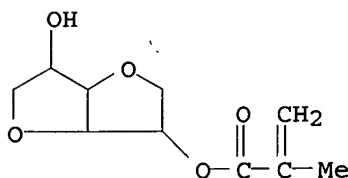
RN 797031-34-6 HCAPLUS

CN Hexitol, 1,4:3,6-dianhydro-, mono(2-methyl-2-propenoate), polymer with 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-propenoate, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-methyl-2-propenoate and 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 690639-00-0

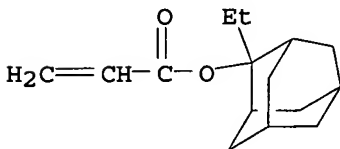
CMF C10 H14 O5



CM 2

CRN 303186-14-3

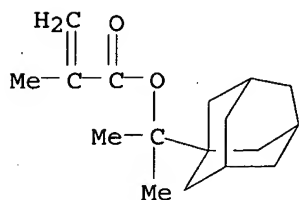
CMF C15 H22 O2



CM 3

CRN 279218-76-7

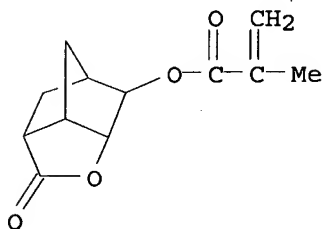
CMF C17 H26 O2



CM 4

CRN 254900-07-7

CMF C12 H14 O4



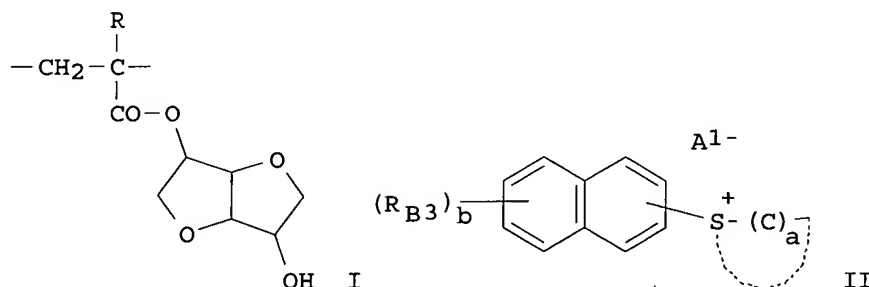
IC ICM G03F007-039
ICS C08F020-28; G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)
ST excimer laser sensitive pos working photoresist sulfonium salt;
photoacid generation **pos** working **resist**
IT 690639-01-1P 797031-22-2P 797031-26-6P 797031-28-8P
797031-30-2P **797031-34-6P** 797031-38-0P 797031-42-6P
797031-47-1P 797032-73-6P **798562-52-4P** 798562-54-6P
802911-56-4P 802911-64-4P 802911-70-2P
(photoacid generation type **pos**.-working
resist composition containing)
IT 144317-44-2 241806-75-7 258872-05-8 284474-28-8
391232-40-9 425670-64-0 474510-73-1 506445-10-9
506445-11-0 524959-12-4 524959-18-0 676502-24-2
690664-06-3 690664-08-5 802911-76-8 802911-78-0
802911-85-9 802911-88-2 802911-90-6 802911-92-8
802912-00-1 802912-05-6
(photoacid generation type **pos**.-working
resist composition containing)
IT 524959-11-3
(photoacid generator; photoacid generation type **pos**
.-working **resist** composition containing)

L18 ANSWER 6 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:1035955 HCAPLUS
DOCUMENT NUMBER: 142:13683

TITLE: Positive-working far-UV photoresists
 INVENTOR(S): Sato, Kenichiro; Kodama, Kunihiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 55 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004341062	A2	20041202	JP 2003-134806	2003 0513
PRIORITY APPLN. INFO.:				2003 0513

OTHER SOURCE(S): MARPAT 142:13683
 GI



AB The photoresists contain polymers having (meth)acrylate repeating unit I increasing solubility rate to alkali developers by acid action, naphthalenesulfonium salt photoacid generators II [RB_1 , $\text{RB}_2 = \text{H}$, C_1 -4 alkyl; $\text{RB}_3 = \text{OH}$, ORB_4 ; $\text{RB}_4 = \text{monovalent C}_1$ -15 organic group, A_1 = monovalent anion, $a = 4$ -7, $b = 0$ -7], and optionally fluorine- and/or silicon-containing surfactants, and organic basic compds. The photoresists provide defect-free good pattern profiles.

IT 797031-32-4

(in pos.-working far-UV photoresists containing isosorbide (meth)acrylate and naphthalenesulfonium salt PAG)

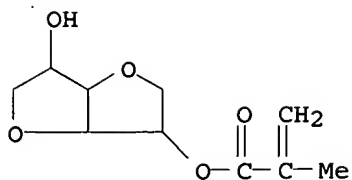
RN 797031-32-4 HCAPLUS

CN Hexitol, 1,4:3,6-dianhydro-, mono(2-methyl-2-propenoate), polymer with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-methyl-2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 690639-00-0

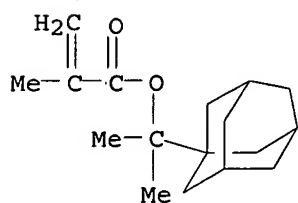
CMF C10 H14 O5



CM 2

CRN 279218-76-7

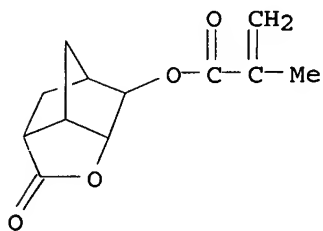
CMF C17 H26 O2



CM 3

CRN 254900-07-7

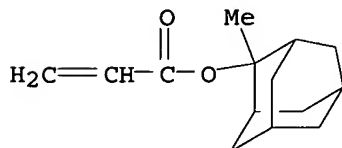
CMF C12 H14 O4



CM 4

CRN 249562-06-9

CMF C14 H20 O2



IC ICM G03F007-039

ICS C08F020-28; G03F007-004; H01L021-027

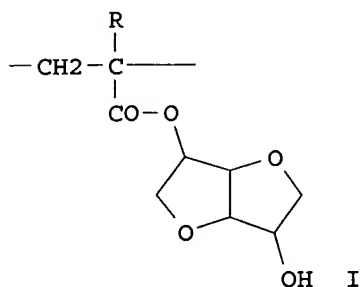
CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)

Section cross-reference(s): 38
 ST far UV pos photoresist isosorbide acrylate copolymer;
 naphthalenesulfonate salt photoacid generator **pos** far UV
resist
 IT 797031-22-2 797031-24-4 797031-26-6 797031-28-8
 797031-30-2 **797031-32-4 797031-34-6**
 797031-36-8 797031-38-0 797031-40-4 797031-42-6
 797031-45-9 797031-47-1 797032-73-6
 (in pos.-working far-UV photoresists containing isosorbide
 (meth)acrylate and naphthalenesulfonium salt PAG)

L18 ANSWER 7 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:1018941 HCAPLUS
 DOCUMENT NUMBER: 142:13678
 TITLE: **Positive-working resist**
 composition sensitive far-UV light
 INVENTOR(S): Sato, Kenichiro; Kodama, Kunihiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 61 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004333925	A2	20041125	JP 2003-130385	2003 0508
PRIORITY APPLN. INFO.:				2003 0508

GI



AB Disclosed is the **pos.-working resist** composition
 comprising (A) a resin which is able to increase its solubility in an
 alkali developer upon the interaction with an acid and has a
 repeating unit represented by I (R = H, alkyl), (B) a photoacid
 represented by R1sR2sR3sS+ X- (R1s-3s = alkyl; and X- = anion),
 and (C) a solvent.
 IT **798562-52-4**

(alkali soluble resin; **pos.**-working **resist**
composition sensitive far-UV light)

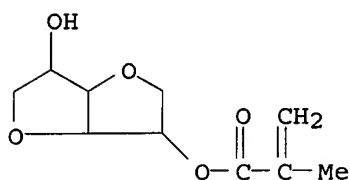
RN 798562-52-4 HCAPLUS

CN Hexitol, 1,4:3,6-dianhydro-, mono(2-methyl-2-propenoate), polymer
with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl
2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl
2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 690639-00-0

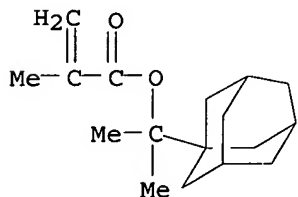
CMF C10 H14 O5



CM 2

CRN 279218-76-7

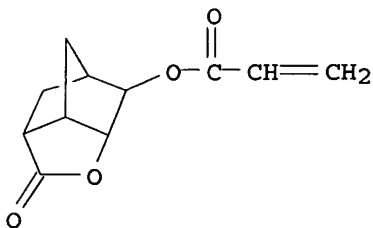
CMF C17 H26 O2



CM 3

CRN 242129-35-7

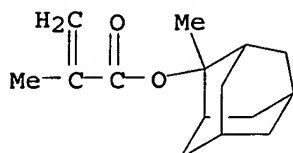
CMF C11 H12 O4



CM 4

CRN 177080-67-0

CMF C15 H22 O2



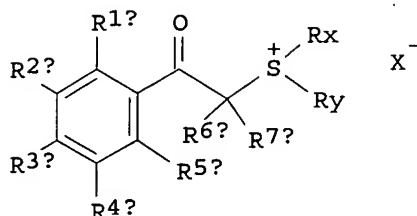
IC ICM G03F007-039
ICS C08F020-28; G03F007-004; H01L021-027
CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 35, 38
ST **pos** working photoresist **resist** compn far UV;
alkali sol resin photoacid
IT Photoresists
Resists
(**pos**.-working **resist** composition sensitive
far-UV light)
IT 690639-01-1P
(alkali soluble resin; **pos**.-working **resist**
composition sensitive far-UV light)
IT 797031-22-2 797031-24-4 797031-26-6 797031-28-8
797031-30-2 797031-36-8 797031-38-0 797031-42-6
797031-45-9 797032-73-6 **798562-52-4**
798562-53-5 798562-54-6 798562-55-7
(alkali soluble resin; **pos**.-working **resist**
composition sensitive far-UV light)
IT 66003-78-9 144317-44-2 284474-28-8 301153-78-6 338445-31-1
347193-28-6 347193-29-7 383367-32-6 454471-25-1
481071-85-6 540729-49-5 677351-28-9 761458-64-4
761458-65-5 798562-57-9
(photoacid; **pos**.-working **resist** composition
sensitive far-UV light)

L18 ANSWER 8 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:904404 HCAPLUS
DOCUMENT NUMBER: 141:386378
TITLE: **Positive-working resist**
composition containing alkali soluble resins
and photoacids
INVENTOR(S): Sasaki, Tomoya
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 93 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004302189	A2	20041028	JP 2003-95605	2003 0331

PRIORITY APPLN. INFO.:

JP 2003-95605

2003
0331OTHER SOURCE(S): MARPAT 141:386378
GI

AB Disclosed is the **pos.-working resist** composition comprising (a) a resin increasing its solubility to an alkali developer upon an interaction with an acid and (b) a photoacid, wherein the resin (a) contains ≥ 1 repeating unit having ≥ 1 group represented by $-C(OR)(CR5OR51R52)(CR52R54R55)$ ($T50-55 = H, F, alkyl$; and $R = H, acid\ decomposable\ or\ nondecomposable\ group$) and the photoacid (b) is represented by $R1bR2bR33bS^+ X^-$ ($R1b-3b = organic\ group\ free\ of\ aromatic\ ring$; $X^- = sulfonic\ acid, carboxylic\ acidsulfonylimide$) or **I** ($R1c-5c = H, alkyl, alkoxy, etc.$; $R6c-7c = H, alkyl, aryl$; $Rx, Ry = alkyl, 2-oxoalkyl, etc.$). The composition was suitable for a light source having a wavelength $\leq 160\ nm$.

IT 782482-79-5P

(**pos.-working resist** composition containing alkali soluble resin and photoacid)

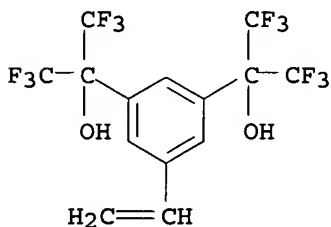
RN 782482-79-5 HCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 5-ethenyl- $\alpha, \alpha, \alpha', \alpha'$ -tetrakis(trifluoromethyl)-1,3-benzenedimethanol and 2,2,2-trifluoro-1-[4-[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl]-1-(trifluoromethyl)ethyl 2-(trifluoromethyl)-2-propenoate (9CI) (CA INDEX NAME)

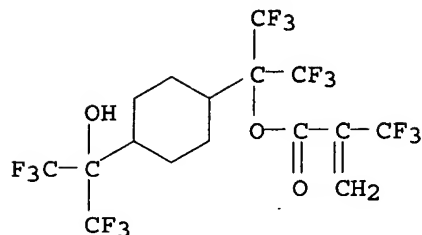
CM 1

CRN 568587-26-8

CMF C14 H8 F12 O2

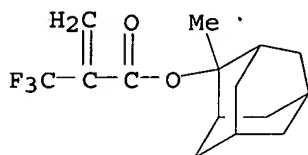


CRN 479072-83-8
CMF C16 H13 F15 O3



CM 3

CRN 188739-86-8
CMF C15 H19 F3 O2



- IC ICM G03F007-039
ICS G03F007-004; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
- ST pos working resist compn
- IT Photolithography
Photoresists
Resists
(pos.-working resist composition containing alkali
soluble resin and photoacid)
- IT 160481-39-0 301664-71-1 347193-29-7 454471-17-1
540729-47-3
(photoacid; pos.-working resist composition
containing alkali soluble resin and photoacid)
- IT 782482-74-0P 782482-76-2P 782482-78-4P 782482-79-5P
782482-82-0P 782482-84-2P 782482-85-3P 782482-88-6P
782482-91-1P
(pos.-working resist composition containing alkali
soluble resin and photoacid)
- IT 98-59-9, p-Toluenesulfonic acid chloride 107-30-2,
Chloromethyl-methyl ether 802-93-7, 1,3-Bis(2-
hydroxyhexafluoroisopropyl)benzene 3536-96-7, Vinyl magnesium
chloride
(pos.-working resist composition containing alkali
soluble resin and photoacid)
- IT 501935-24-6P 568587-26-8P 585573-34-8P 585573-35-9P
585573-59-7P
(pos.-working resist composition containing alkali
soluble resin and photoacid)

L18 ANSWER 9 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2004:857028 HCAPLUS
 DOCUMENT NUMBER: 141:358073
 TITLE: **Positive resist**
 composition and pattern formation method
 INVENTOR(S): Momota, Makoto; Nakao, Hajime
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: U.S. Pat. Appl. Publ., 58 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004202954	A1	20041014	US 2004-802808	2004 0318
JP 2004310075	A2	20041104	JP 2004-86206	2004 0324
PRIORITY APPLN. INFO.:			JP 2003-88357	A 2003 0327
			JP 2003-89020	A 2003 0327

AB A **pos. resist** composition comprises (A) a resin capable of increasing its solubility in an alkali developer under action of an acid, wherein the resin contains a repeating unit originated in an acrylic acid ester derivative in amount of 50-100 mol% based on all repeating units and has a repeating unit having a specific lactone structure and a repeating unit having a monohydroxyadamantane or dihydroxyadamantane structure, (B) a compound of generating an acid upon irradiation with actinic rays or radiation, and (C) an organic solvent. The object of the present invention is to provide a **pos. resist** composition reduced in the generation of cracking at the thermal flow process and excellent in the dry etching resistance, and a pattern formation method using the composition

IT 774242-29-4P

(**pos. resist** composition and pattern formation method)

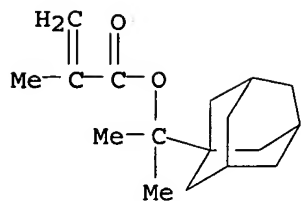
RN 774242-29-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate and 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 279218-76-7

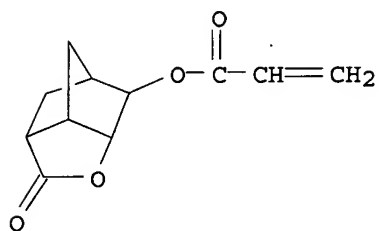
CMF C17 H26 O2



CM 2

CRN 242129-35-7

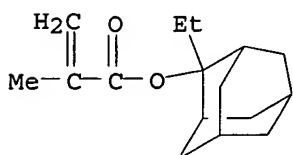
CMF C11 H12 O4



CM 3

CRN 209982-56-9

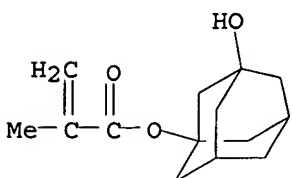
CMF C16 H24 O2



CM 4

CRN 115372-36-6

CMF C14 H20 O3



IC ICM G03C001-52

INCL 430170000

CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 38ST **pos resist** compn pattern polymer photolithogIT Polysiloxanes, uses
(KP-341, Troysol S-366; **pos. resist** composition
and pattern formation method)

IT Photolithography

Positive photoresists(pos. resist composition and pattern formation
method)IT 376348-94-6P 460754-19-2P 485391-35-3P 561308-62-1P
610300-94-2P 610300-95-3P 774242-23-8P 774242-24-9P
774242-25-0P 774242-26-1P 774242-27-2P 774242-28-3P
774242-29-4P 774242-30-7P 774242-31-8P 774242-32-9P
774242-33-0P 774242-34-1P 774242-35-2P 774242-36-3P
774242-37-4P(pos. resist composition and pattern formation
method)IT 97-64-3, Ethyl lactate 108-32-7, Propylene carbonate 108-94-1,
Cyclohexanone, uses 120-92-3, Cyclopentanone 583-60-8,
2-Methylcyclohexanone 613-29-6, N,N-Di-butylaniline 1116-76-3,
Trioctylamine 1320-67-8, Propylene glycol monomethyl ether
3001-72-7, 1,5-Diazabicyclo[4.3.0]-non-5-ene 31075-38-4,
Adamantylamine 84540-57-8, Propylene glycol monomethyl ether
acetate 91552-65-7, 2,5-Diisopropylaniline 137462-24-9,
Megafac F 176 144317-44-2 216679-67-3, Megafac R 08
284474-28-8 301664-71-1 680200-02-6(pos. resist composition and pattern formation
method)

L18 ANSWER 10 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:824996 HCAPLUS

DOCUMENT NUMBER: 141:340392

TITLE: **Positive resist**
composition and method of pattern formation

INVENTOR(S): Yamanaka, Tsukasa; Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 52 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

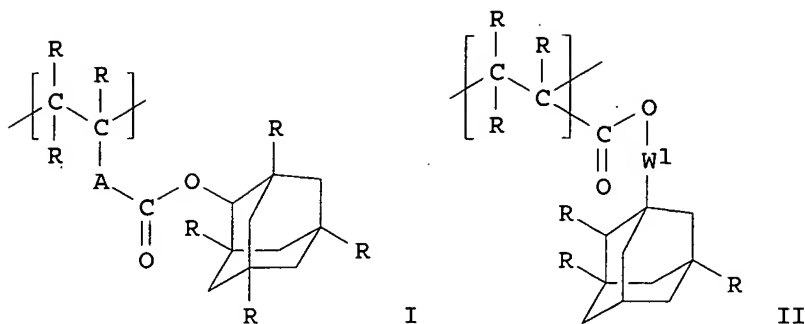
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004197707	A1	20041007	US 2004-801723	2004 0317
JP 2004302198	A2	20041028	JP 2003-95804	2003 0331
PRIORITY APPLN. INFO.:			JP 2003-95804	A 2003 0331

GI



AB A pos. resist composition comprises: at least two resins which differ in glass transition temperature by at least 5° C and have structural formulas I and II (R = H, OH, halogen, C1-4-alkyl, provided that R's are the same or different; A = single bond, alkylene, ether, thioether, carbonyl, ester, amide, sulfonamide, urethane, urea; W1 = alkyne group.); and a compound which generates an acid upon irradiation with actinic rays or radiation, wherein each of the two resins comprises at least either of a repeating unit derived from an acrylic acid derivative monomer and a repeating unit derived from an methacrylic acid derivative monomer and further comprises an alicyclic structure and at least one group that increases a solubility of the resin in alkaline developer by the action of an acid. The object of the invention is to provide a resist composition which is suitable for exposure to light having a wavelength of 200 nm or shorter, in particular, exposure with an ArF excimer laser, shows sufficient resolution even in ordinary pattern formation, and has such thermal flow suitability that a reduced pattern size can be obtained only through flow bake at an appropriate temperature, and it is easy to regulate the flow amount while attaining an appropriate flow rate.

IT 771566-52-0P

(pos. resist composition and method of pattern formation)

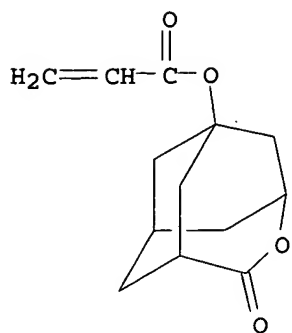
RN 771566-52-0 HCAPLUS

CN 2-Propenoic acid, 1,1-dimethylethyl ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-propenoate and 5-oxo-4-oxatricyclo[4.3.1.1^{3,8}]undec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 265999-35-7

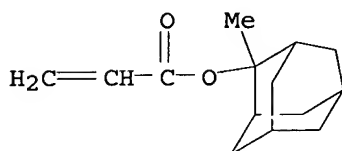
CMF C13 H16 O4



CM 2

CRN 249562-06-9

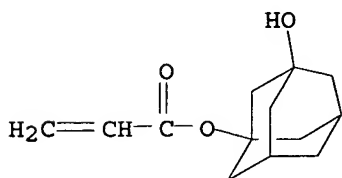
CMF C14 H20 O2



CM 3

CRN 216581-76-9

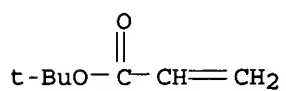
CMF C13 H18 O3



CM 4

CRN 1663-39-4

CMF C7 H12 O2



IC ICM G03C001-76

INCL 430281100; 430270100

CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38

ST **pos resist compn** ArF photolithog polymer

IT Photolithography
Positive photoresists
 (pos. resist composition and method of pattern
 formation)

IT 391232-40-9
 (photoacid generator; **pos. resist** composition
 and method of pattern formation)

IT 366458-35-7P 405509-21-9P 581784-06-7P 610300-93-1P
 610300-94-2P 677351-19-8P 680223-02-3P 724776-70-9P
 766528-07-8P 766528-25-0P 766528-39-6P 771566-28-0P
 771566-31-5P 771566-37-1P 771566-45-1P 771566-49-5P
 771566-52-0P 771577-83-4P
 (pos. resist composition and method of pattern
 formation)

IT 144317-44-2 227199-92-0 240424-21-9 258872-05-8
 284474-28-8 312386-77-9 347193-29-7 389859-76-1
 398141-19-0 398141-23-6 470482-89-4 506445-19-8
 610301-34-3 680200-03-7 771566-61-1
 (pos. resist composition and method of pattern
 formation)

L18 ANSWER 11 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:389962 HCAPLUS

DOCUMENT NUMBER: 140:383119

TITLE: Chemically amplified **positive**
resist compositions showing stable
 post-exposure and -coating delay

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 68 pp.
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

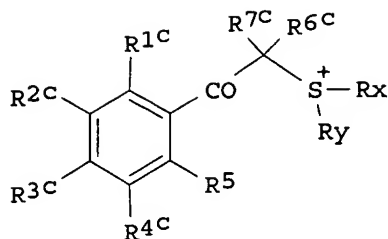
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004138663	A2	20040513	JP 2002-300750	2002 1015

PRIORITY APPLN. INFO.: JP 2002-300750

2002
1015

OTHER SOURCE(S): MARPAT 140:383119

GI



AB The compns., showing high transparency to far-UV light especially ArF excimer laser light, comprise (A) resins increasing solubility in acids by acid action and having unit $\text{CH}_2\text{CR}_1\text{CO}_2\text{LZ}$ [$\text{R}_1 = \text{H, Me}$; $\text{L} = \text{single bond, alkylene, ether, ester, and/or CO}$; $\text{Z} = \text{CO}_2\text{H, OH, COCH}_2\text{COR}_4$ ($\text{R}_4 = \text{hydrocarbyl}$)], $\text{CH}_2\text{CR}_2\text{AC}_2\text{ALG}$ ($\text{R}_2 = \text{H, Me}$; $\text{A} = \text{single bond, bridging group}$; $\text{ALG} = \text{prescribed alicyclic substituent etc.}$), and $\text{CH}_2\text{CR}_3\text{A}_3\text{Z}_3(\text{OH})_p$ [$\text{R}_3 = \text{H, Me}$; $\text{A}_3 = \text{single bond, bivalent bridging group}$; $\text{Z}_3 = (p + 1)\text{-valent alicyclic hydrocarbyl}$; $p = 1\text{-}3$], (B) radiation-sensitive acid generators I ($\text{R}_1\text{c}\text{-R}_5\text{c} = \text{H, alkyl, alkoxy, halo}$; $\text{R}_6\text{c, R}_7\text{c} = \text{H, alkyl, aryl}$; $\text{Rx, Ry} = \text{alkyl, 2-oxoalkyl, alkoxy, carbonylmethyl, etc.}$; $\text{X-} = \text{sulfonate, carboxylate, sulfonylimide}$), and (C) solvents.

IT 683809-91-8

(pos. resists showing wide process margin
and stable post-exposure and -coating delay for ArF excimer
laser-utilized photofabrication)

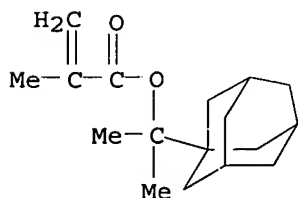
RN 683809-91-8 HCAPLUS

CN Butanedioic acid, mono[1-methyl-2-[(2-methyl-1-oxo-2-propenyl)oxy]ethyl] ester, polymer with 3,5-dihydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 279218-76-7

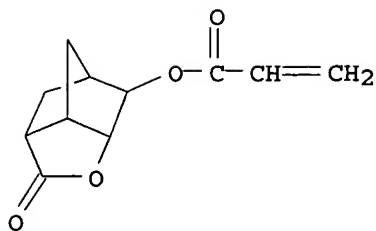
CMF C17 H26 O2



CM 2

CRN 242129-35-7

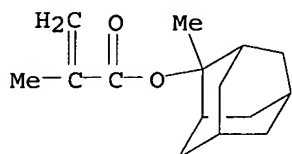
CMF C11 H12 O4



CM 3

CRN 177080-67-0

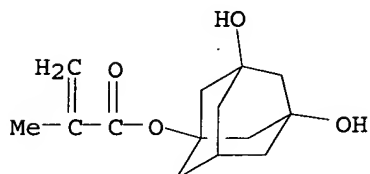
CMF C15 H22 O2



CM 4

CRN 115522-15-1

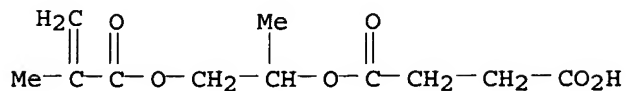
CMF C14 H20 O4



CM 5

CRN 23128-79-2

CMF C11 H16 O6



IC ICM G03F007-039

ICS C08F220-28; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)

Section cross-reference(s): 38

ST amplified pos photoresist post exposure delay stability; argon fluoride excimer transparency **pos resist**;

phenacylsulfonium photoacid generator amplified photoresist process margin

IT Photoresists
(UV, far-UV, **pos.**-working; **pos.**
resists showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT **Resists**
(**pos.**-working, chemical amplified; **pos.**
resists showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate (photoacid cgenerators; **pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 301664-71-1P 301664-72-2P 398141-19-0P
(photoacid generators; **pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 144317-44-2, Triphenylsulfonium nonafluorobutanesulfonate
258872-05-8, Diphenyl(4-tert-butylphenyl)sulfonium nonafluorobutanesulfonate 454471-07-9 454471-11-5
470482-89-4 474510-73-1
(photoacid generators; **pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 19158-66-8P
(**pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 683809-88-3P
(**pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 70-11-1, Phenacyl bromide 110-01-0, Tetrahydrothiophene
29420-49-3, Potassium perfluorobutanesulfonate
(**pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

IT 680223-07-8 680223-09-0 683809-90-7 **683809-91-8**
683811-62-3
(**pos. resists** showing wide process margin and stable post-exposure and -coating delay for ArF excimer laser-utilized photofabrication)

L18 ANSWER 12 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:330802 HCAPLUS

DOCUMENT NUMBER: 140:347517

TITLE: **Positive-working resist**
composition containing resin having alicyclic hydrocarbon group in the side chain and trialkylsulfonium photoacid

INVENTOR(S): Nishiyama, Fumiyuki; Sato, Kenichiro; Kodama, Kunihiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 63 pp.

CODEN: JKXXAF

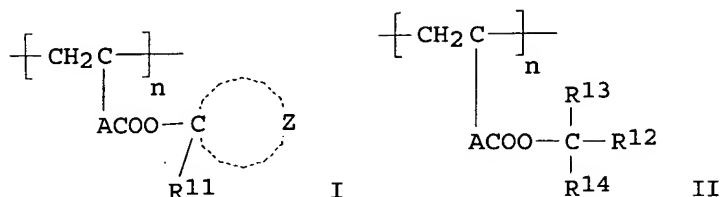
DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004126014	A2	20040422	JP 2002-287392	2002 0930
PRIORITY APPLN. INFO.:			JP 2002-287392	2002 0930

OTHER SOURCE(S): MARPAT 140:347517
GI



AB The **pos.**-working **resist** composition comprises (1) a resin having repeating units I and [H₂C-CR₁₀ (-A-COOCR₁₂R₁₃R₁₄)] (R₁₀ = H, alkyl; A = bonding group; R₁₁ = C1-4 alkyl; Z = atomic group forming alicyclic hydrocarbon with C; R₁₂-14 = hydrocarbon) having an alicyclic hydrocarbon group in the side chain and (2) a trialkylsulfonium photoacid R_{1b}R_{2b}R_{3b}S⁺X⁻ (R_{1b}-3b = alkyl; X⁻ = counter anion). Further, the composition comprises a F- and/or Si-based surfactant and an organic base compound. The **pos.**-working **resist** composition is especially suited for an ArF excimer laser.

IT 479081-07-7

(resin; **pos.**-working **resist** composition containing resin having alicyclic hydrocarbon group in side chain and trialkylsulfonium photoacid)

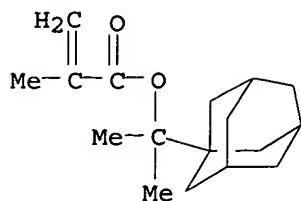
RN 479081-07-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 279218-76-7

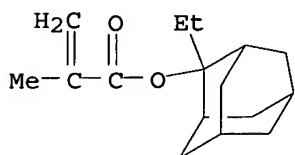
CMF C17 H26 O2



CM 2

CRN 209982-56-9

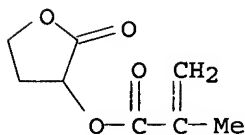
CMF C16 H24 O2



CM 3

CRN 195000-66-9

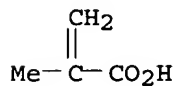
CMF C8 H10 O4



CM 4

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS C08F220-12; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
 Section cross-reference(s): 35, 38, 46

IT Photoresists

Resists

Surfactants

(pos.-working resist composition containing resin

having alicyclic hydrocabon group in side chain and trialkylsulfonium photoacid)

IT Polysiloxanes, uses
(surfactant; **pos.**-working **resist** composition containing resin having alicyclic hydrocabon group in side chain and trialkylsulfonium photoacid)

IT 60-80-0, Antipyrine 102-82-9, Tri-n-butylamine 484-47-9
3001-72-7, 1,5-Diazabicyclo[4.3.0]-5-nonene 41556-26-7,
Bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate
(base compound; **pos.**-working **resist** composition containing resin having alicyclic hydrocabon group in side chain and trialkylsulfonium photoacid)

IT 301153-77-5 301153-78-6 347193-29-7 398141-21-4
(photoacid; **pos.**-working **resist** composition containing resin having alicyclic hydrocabon group in side chain and trialkylsulfonium photoacid)

IT 479081-07-7 479081-08-8 479081-10-2
479081-11-3 479081-12-4 479081-13-5
479081-14-6 479081-15-7 479081-16-8
479081-18-0 479081-19-1 479081-20-4
479081-21-5 676502-05-9 676522-31-9
(resin; **pos.**-working **resist** composition containing resin having alicyclic hydrocabon group in side chain and trialkylsulfonium photoacid)

IT 9016-45-9, Polyoxyethylene nonylphenyl ether 137462-24-9,
Megafac F176 216679-67-3, Megafac R08
(surfactant; **pos.**-working **resist** composition containing resin having alicyclic hydrocabon group in side chain and trialkylsulfonium photoacid)

L18 ANSWER 13 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:330801 HCAPLUS

DOCUMENT NUMBER: 140:347516

TITLE: **Positive-working resist**
composition containing resin having alicyclic hydrocabon group in the side chain and sulfonyl photoacid having naphthalene skeleton

INVENTOR(S): Nishiyama, Fumiyuki; Sato, Kenichiro; Kodama, Kunihiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 65 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

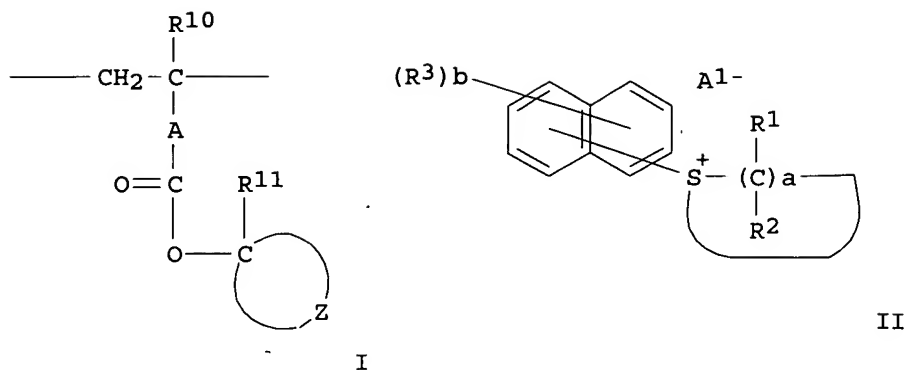
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2004126013	A2	20040422	JP 2002-287391	2002 0930

PRIORITY APPLN. INFO.: JP 2002-287391

2002
0930

OTHER SOURCE(S): MARPAT 140:347516

GI



AB The **pos.-working resist** composition comprises (1) a resin having repeating units I and [H₂C-CR₁₀ (-A-COOCR₁₂R₁₃R₁₄)] (R₁₀ = H, alkyl; A = bonding group; R₁₁ = C1-4 alkyl; Z = atomic group forming alicyclic hydrocarbon with C; R₁₂-14 = hydrocarbon) having an alicyclic hydrocarbon group in the side chain and (2) a sulfonyl photoacid II (R_{1,2} = H, C1-4 alkyl; R₃ = OH, etc.; A₁- = monovalent anion; a = integer 4-7; and b = integer 0-7). Further, the composition comprises a F- and/or Si-based surfactant and an organic base compound. The **pos.-working resist** composition is especially suited for an ArF excimer laser.

IT 479081-07-7P

(resin; **pos.-working resist** composition containing resin having alicyclic hydrocarbon group in side chain and sulfonyl photoacid having naphthalene skeleton)

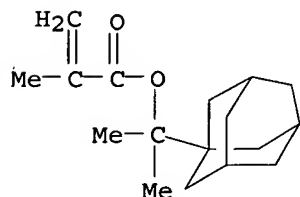
RN 479081-07-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 2-ethyltricyclo[3.3.1.3,7]dec-2-yl 2-methyl-2-propenoate, 1-methyl-1-tricyclo[3.3.1.3,7]dec-1-ylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 279218-76-7

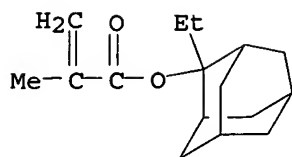
CMF C17 H26 O2



CM 2

CRN 209982-56-9

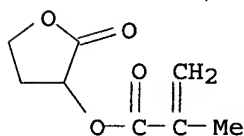
CMF C16 H24 O2



CM 3

CRN 195000-66-9

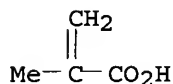
CMF C8 H10 O4



CM 4

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS C08F220-12; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38, 46

IT Photoresists

Resists

Surfactants

(pos.-working **resist** composition containing resin
having alicyclic hydrocarbon group in side chain and sulfonyl
photoacid having naphthalene skeleton)

IT Polysiloxanes, uses

(surfactant; pos.-working **resist** composition
containing resin having alicyclic hydrocarbon group in side chain
and sulfonyl photoacid having naphthalene skeleton)IT 60-80-0, Antipyrine 102-82-9, Tri-n-butylamine 484-47-9
3001-72-7, 1,5-Diazabicyclo[4.3.0]-5-nonene 36631-19-3,
Triphenylimidazole 41556-26-7, Bis(1,2,2,6,6-pentamethyl-4-
piperidyl)sebacate(base compound; pos.-working **resist** composition
containing resin having alicyclic hydrocarbon group in side chain
and sulfonyl photoacid having naphthalene skeleton)

IT 209482-18-8 220475-58-1 681008-00-4 681008-02-6

(photoacid; pos.-working **resist** composition
containing resin having alicyclic hydrocarbon group in side chain
and sulfonyl photoacid having naphthalene skeleton)

IT 479081-07-7P
 (resin; **pos.**-working **resist** composition containing
 resin having alicyclic hydrocabon group in side chain and
 sulfonyl photoacid having naphthalene skeleton)

IT 479081-08-8 479081-10-2 479081-11-3
 (resin; **pos.**-working **resist** composition containing
 resin having alicyclic hydrocabon group in side chain and
 sulfonyl photoacid having naphthalene skeleton)

IT 9016-45-9, Polyoxyethylene nonylphenyl ether 137462-24-9,
 Megafac F176 216679-67-3, Megafac R08
 (surfactant; **pos.**-working **resist** composition
 containing resin having alicyclic hydrocabon group in side chain
 and sulfonyl photoacid having naphthalene skeleton)

L18 ANSWER 14 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:269885 HCAPLUS

DOCUMENT NUMBER: 140:311995

TITLE: **Positive resist**

composition and pattern formation method

INVENTOR(S): Nishiyama, Fumiyuki; Sato, Kenichiro; Kodama,
 Kunihiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: U.S. Pat. Appl. Publ., 56 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

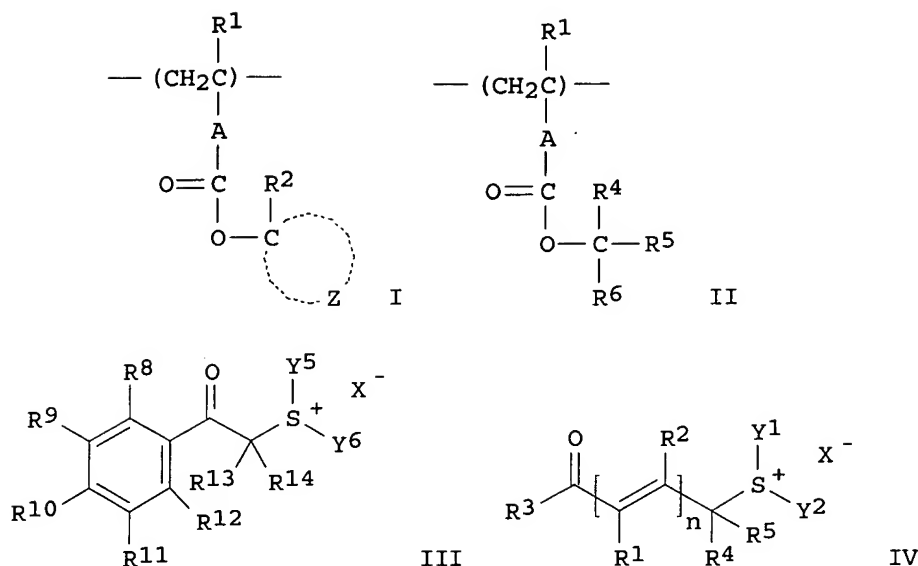
LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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US 2004063827	A1	20040401	US 2003-669603	2003 0925
JP 2004145298	A2	20040520	JP 2003-315478	2003 0908
PRIORITY APPLN. INFO.:			JP 2002-287252	A 2002 0930
			JP 2002-287393	A 2002 0930

GI



AB A **pos. resist** composition comprising: (A) a resin having alicyclic hydrocarbon groups in side chains, containing repeating units of general formulas I and II ($R_1 = \text{H, alkyl}$; A = linkage group, $R_2 = \text{C1-4-alkyl}$; Z = group forming an alicyclic hydrocarbon group together with the carbon atom; $R_4\text{-}R_6 = \text{hydrocarbon group, alicyclic hydrocarbon}$) which increases the solubility in an alkali developing solution by the action of an acid; and (B) a particular sulfonium compound having a general structures of formulas III and IV ($R_1\text{-}R_3 = \text{H, alkyl, alkenyl, aryl, alkoxy}$; $R_4, R_5 = \text{H, cyano, alkyl, aryl, alkoxy}$; $Y_1, Y_2 = \text{alkyl, aryl, aralkyl, heteroatom-containing aromatic group}$; $n = 1\text{-}4$; $R_8\text{-}R_{12} = \text{H, nitro, halogen, alkyl, alkoxy, alkyloxycarbonyl, aryl, acylamino, with the proviso that at least two of } R_8\text{-}R_{12} \text{ may be bonded with each other to form a ring}$; $R_{13} = \text{H, cyano, alkyl, aryl}$; $R_{14} = \text{alkyl, aryl}$; $Y_5, Y_6 = \text{alkyl, aryl, aralkyl, heteroatom-containing aromatic group}$, Y_5 and Y_6 may be bonded with each other to form a ring; $X^- = \text{non-nucleophilic anion}$) which is capable of generating an acid upon irradiation with an actinic ray or radiation. The object of the present invention is to provide a **pos. resist** composition that is used suitably in micro-photofabrication utilizing far UV light, notably ArF excimer laser beam, and offers excellent line edge roughness performance and excellent pattern collapse performance.

IT 479081-07-7P

(**pos. resist** composition and pattern formation method)

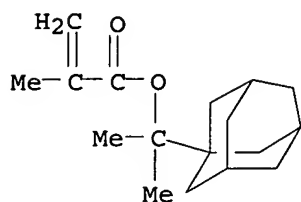
RN 479081-07-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 279218-76-7

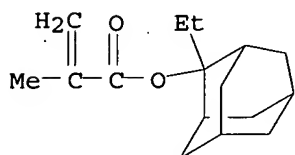
CMF C17 H26 O2



CM 2

CRN 209982-56-9

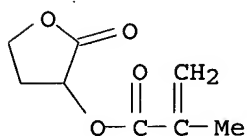
CMF C16 H24 O2



CM 3

CRN 195000-66-9

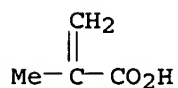
CMF C8 H10 O4



CM 4

CRN 79-41-4

CMF C4 H6 O2



IC ICM C08K005-41

INCL 524155000

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

ST pos resist compn photolithog UV pattern
formation method

IT Polysiloxanes, uses
(KP-341, Troysol S-366; **pos. resist** composition
and pattern formation method)

IT Photolithography
(UV; **pos. resist** composition and pattern
formation method)

IT **Positive** photoresists
(**pos. resist** composition and pattern formation
method)

IT 470482-89-4 524959-11-3 524959-16-8 524959-18-0
524959-28-2 610301-07-0 610301-08-1 610301-09-2
610301-13-8 610301-16-1 610301-21-8 610301-28-5
610301-34-3 676502-09-3 676502-10-6 676502-11-7
676502-13-9 676502-14-0 676502-16-2 676502-18-4
676502-20-8 676502-22-0 676502-24-2 676502-25-3
676502-26-4 676502-27-5 676502-29-7
(photoacid generator; **pos. resist** composition
and pattern formation method)

IT 479081-07-7P 479081-08-8P 479081-10-2P
479081-11-3P 479081-12-4P 479081-13-5P
479081-14-6P 479081-15-7P 479081-18-0P
479081-19-1P 479081-21-5P 479081-22-6P
479081-24-8P 676502-04-8P 676502-05-9P
676502-07-1P 676502-08-2P 676522-31-9P
(**pos. resist** composition and pattern formation
method)

IT 60-80-0, Antipyrine 102-82-9, Tri-n-butylamine 3001-72-7,
1,5-Diazabicyclo[4.3.0]-5-nonene 9016-45-9, Polyoxyethylene
nonyl phenyl ether 24544-04-5, 2,6-Diisopropylaniline
36631-19-3, Triphenylimidazole 41556-26-7, Bis(1,2,2,6,6,-penta
methyl-4-piperidyl)sebacate 137462-24-9, Megafac F176
216679-67-3, Megafac R08
(**pos. resist** composition and pattern formation
method)

L18 ANSWER 15 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:200873 HCAPLUS

DOCUMENT NUMBER: 140:243593

TITLE: **Positive-working resist**
composition containing acid-decomposable resin
having specific structure

INVENTOR(S): Sasaki, Tomoya; Mizutani, Kazuyoshi; Kanna,
Shinichi

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 85 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2004077908	A2	20040311	JP 2002-239582	2002 0820

PRIORITY APPLN. INFO.: JP 2002-239582

2002
0820

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT

AB The pos.-working resist composition comprises a resin which is alkali developable and has a sp. repeating unit structure, the styrene-standard weight average mol. weight 3,000-50,000, and the

dispersion degree ≤ 1.7 , contains the $\leq 1,000$ mo. weight fraction $\leq 10\%$, and has the residual monomer content $\leq 5\%$. The resin may be selected from I, II, [H₂C-C(CF₃)CO₂R⁴'], and III (X, R³', R⁴' = acid decomposable group; R¹¹-16 and R²¹-32 = H, F, alkyl, etc.; n₁-n₃ = integer 0, 1). The composition exhibited sufficient transmittance at ≤ 160 nm, more specifically, for a F2 excimer laser (157 nm).

IT 669006-27-3

(pos.-working resist composition containing acid-decomposable resin having specific structure)

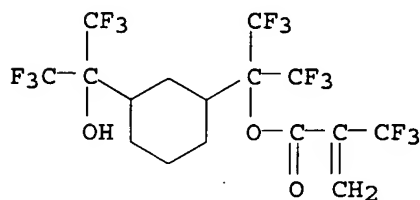
RN 669006-27-3 HCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 2,2,2-trifluoro-1-[3-[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl]-1-(trifluoromethyl)ethyl 2-(trifluoromethyl)-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 669006-26-2

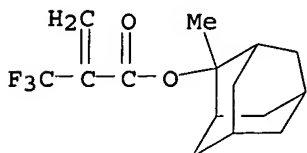
CMF C16 H13 F15 O3



CM 2

CRN 188739-86-8

CMF C15 H19 F3 O2



IC ICM G03F007-039
 ICS C08F012-22; C08F016-00; C08F020-28; C08F032-00; H01L021-027
 CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
 Section cross-reference(s): 35, 38
 ST **pos** working resist compn acid decomposable
 resin vacuum UV
 IT Photoresists
 (UV; **pos.**-working resist composition containing
 acid-decomposable resin having specific structure)
 IT 370866-39-0P 607710-65-6P
 (**pos.**-working resist composition containing
 acid-decomposable resin having specific structure)
 IT 143336-94-1 370102-83-3 406702-00-9 459418-30-5
 607710-66-7 607710-68-9 607710-69-0 607710-70-3
 607710-71-4 607710-73-6 607710-76-9 607710-77-0
 610300-97-5 610300-98-6 610301-00-3 610301-01-4
 610301-03-6 610301-04-7 610301-05-8 669006-25-1
 669006-27-3 669006-28-4
 (**pos.**-working resist composition containing
 acid-decomposable resin having specific structure)

L18 ANSWER 16 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:868612 HCAPLUS
 DOCUMENT NUMBER: 139:371875
 TITLE: **Positive-working resist**
 composition for vacuum-UV exposure
 INVENTOR(S): Kanna, Shinichi; Mizutani, Kazuyoshi; Sasaki,
 Tomoya
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 25 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003316005	A2	20031106	JP 2002-122269	2002 0424
PRIORITY APPLN. INFO.:				2002 0424

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT
 *

AB The **pos.**-working resist composition comprises (a) a photoacid represented by I or II (R1a-27a = H, alkyl, alkoxy, etc.; and X- = anion), (b) a resin which increases its solubility in an alkali developer upon contact with an acid, and (c) a solvent. The composition further comprises a surfactant containing Si and/or F. The

composition further comprises an organic base compound The pos.-working resist composition exhibited a suppressed outgasing.

IT 607710-72-5

(pos.-working resist composition for vacuum-UV exposure)

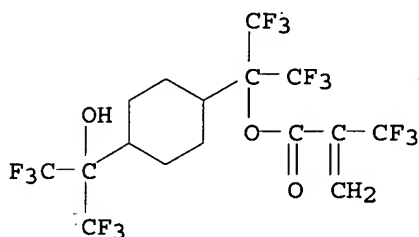
RN 607710-72-5 HCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 2,2,2-trifluoro-1-[4-[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl]-1-(trifluoromethyl)ethyl 2-(trifluoromethyl)-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 479072-83-8

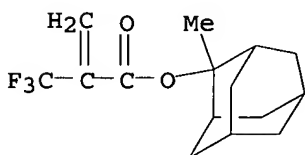
CMF C16 H13 F15 O3



CM 2

CRN 188739-86-8

CMF C15 H19 F3 O2



IC ICM G03F007-039

ICS C08F020-30; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 37, 38

ST pos working resist photoresist compn vacuum UV exposure; photoacid resin surfactant

IT Photoresists

Resists

Surfactants

(pos.-working resist composition for vacuum-UV exposure)

IT Polysiloxanes, uses

(surfactant; pos.-working resist composition for vacuum-UV exposure)

IT 60-80-0, Antipyrine 75-59-2, Tetramethylammonium hydroxide
 122-20-3, Triisopropanolamine 484-47-9 1116-76-3,
 Trioctylamine 3001-72-7, 1,5-Diazabicyclo[4.3.0]-5-nonene
 24544-04-5, 2,6-Diisopropylaniline 41556-26-7,
 Bis(1,2,2,6,6-pentamethyl-4-piperidyl sebacate
 (base compound; pos.-working resist composition
 for vacuum-UV exposure)

IT 297742-41-7 376600-59-8 405284-04-0 405284-05-1
 405284-06-2 620172-21-6 620172-23-8 620172-25-0
 620172-26-1 620172-27-2 620172-28-3 620172-29-4
 620172-30-7 620172-31-8 620172-32-9 620172-33-0
 620172-34-1 620172-35-2 620172-36-3 620172-38-5
 620172-40-9
 (photoacid; pos.-working resist composition for
 vacuum-UV exposure)

IT 370866-39-0P
 (pos.-working resist composition for vacuum-UV
 exposure)

IT 143336-94-1 370102-83-3 406702-00-9 430437-18-6
 459418-30-5 607710-65-6 607710-66-7 607710-67-8
 607710-68-9 607710-69-0 607710-70-3 607710-71-4
 607710-72-5 607710-73-6 607710-76-9 607710-77-0
 607710-78-1 610300-97-5 610300-98-6 610301-00-3
 610301-01-4 610301-03-6
 (pos.-working resist composition for vacuum-UV
 exposure)

IT 9016-45-9, Polyoxyethylenenonylphenyl ether 137462-24-9, Megafac
 F176 216679-67-3, Megafac R08
 (surfactant; pos.-working resist composition for
 vacuum-UV exposure)

L18 ANSWER 17 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:853314 HCAPLUS
 DOCUMENT NUMBER: 139:343479
 TITLE: Sulfonium compounds as radiation-sensitive
 acid generators and resist compositions
 containing them
 INVENTOR(S): Kodama, Kunihiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 66 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003307839	A2	20031031	JP 2002-112372	

2002
0415

PRIORITY APPLN. INFO.: JP 2002-112372

2002
0415

OTHER SOURCE(S): MARPAT 139:343479

AB (Ba)mAaS+Y1Y2 X- (I; Y1, Y2 = alkyl, aryl, aralkyl, heterocyclyl,
 oxoalkyl, oxoaralkyl; Y1 and Y2 may be bonded together to form a
 ring; Aa = direct bond, organic group; Ba = group having CONRa or

SO₂NRa; Ra = H, alkyl; m = 1-3; X- = nonnucleophilic anion), which generate acids upon irradiation with actinic ray or radiation, are claimed. Also claimed are resist compns. containing I, **pos** .-working **resist** compns. containing I and resins which are decomposed by acids to show increased solubility to an alkaline developer, neg.-working resist compns. containing I, water-insol. alkali-soluble resins, and crosslinking agents which crosslink to the alkali-soluble resins by acids, etc. The resist compns. containing I show high sensitivity, resolution, and good profile, and are especially suitable for irradiation with far-UV and electron beam.

IT 607710-72-5P

(preparation of sulfonium compds. having amide or sulfonamide linkage as radiation-sensitive acid generators and **resist** compns. containing them)

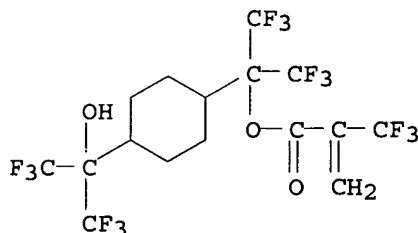
RN 607710-72-5 HCAPLUS

CN 2-Propenoic acid, 2-(trifluoromethyl)-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with 2,2,2-trifluoro-1-[4-[2,2,2-trifluoro-1-hydroxy-1-(trifluoromethyl)ethyl]cyclohexyl]-1-(trifluoromethyl)ethyl 2-(trifluoromethyl)-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 479072-83-8

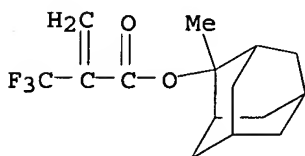
CMF C16 H13 F15 O3



CM 2

CRN 188739-86-8

CMF C15 H19 F3 O2



IC ICM G03F007-004

ICS C07C381-12; C08F012-14; C08F220-18; C08F220-26; C08F232-04; C09K003-00; G03F007-038; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)

IT **Resists**

(**pos**.-working; preparation of sulfonium compds. having

amide or sulfonamide linkage as radiation-sensitive acid generators and resist compns. containing them)

IT 109-92-2DP, Ethyl vinyl ether, reaction products with poly(hydroxystyrene) 129674-22-2P 143336-94-1P 159296-87-4P 177034-73-0P 177034-75-2P 199432-82-1P 200808-68-0P 228101-60-8P 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl methacrylate copolymer 288620-13-3P 288620-15-5P 289623-64-9P 289706-85-0P 312620-54-5P 325143-38-2P 326591-96-2P 359635-35-1P 366808-82-4P 370866-39-0P 372968-15-5P 391232-36-3P 398140-38-0P 398140-43-7P 398140-45-9P 398140-57-3P 398140-59-5P 398140-68-6P 398140-69-7P 398140-77-7P 398140-80-2P 405509-19-5P 406702-00-9P 430437-18-6P 459418-30-5P 482609-97-2P 503003-65-4P 508210-04-6P 521303-15-1P 521303-16-2P 524699-47-6P 574735-94-7P 594855-58-0P 607710-65-6P 607710-66-7P 607710-67-8P 607710-68-9P 607710-69-0P 607710-70-3P 607710-71-4P 607710-72-5P 607710-73-6P 607710-76-9P 607710-77-0P 610300-92-0P 610300-96-4P 610300-97-5P 610300-98-6P 610301-00-3P 610301-01-4P 610301-03-6P 610301-04-7P 610301-05-8P 615278-35-8P 617692-20-3P

(preparation of sulfonium compds. having amide or sulfonamide linkage as radiation-sensitive acid generators and resist compns. containing them)

L18 ANSWER 18 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:754897 HCAPLUS
 DOCUMENT NUMBER: 139:252537
 TITLE: Positive resist composition
 INVENTOR(S): Fujimori, Toru
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Eur. Pat. Appl., 89 pp.
 CODEN: EPXWDW
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1347335	A1	20030924	EP 2003-6122	2003 0318
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2003270791	A2	20030925	JP 2002-74565	2002 0318
US 2003224287	A1	20031204	US 2003-388408	2003 0317
PRIORITY APPLN. INFO.:				2002 0318
JP 2002-74565				A

AB A pos. photoresist composition used in fabrication of semiconductor devices comprises: (A) a compound capable of generating an acid on

exposure to active light rays or a radiation; (B) a resin which is insol. or sparingly soluble in an alkali and becomes alkali-soluble by an action of an acid; and (C) an acyclic compound having at least three groups selected from a hydroxyl group and a substituted hydroxyl group.

IT 288303-55-9P

(pos. photoresist composition containing)

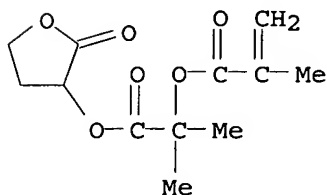
RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 288303-54-8

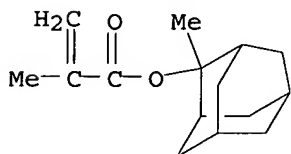
CMF C12 H16 O6



CM 2

CRN 177080-67-0

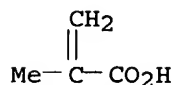
CMF C15 H22 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38

IT Photoresists
 (pos. resist composition)
 IT 109-92-2DP, Ethyl vinyl ether, reaction product with
 polyhydroxystyrene 24979-70-2DP, VP15000, reaction product with
 alkyl vinyl ether 159296-87-4P 200808-68-0P 250378-10-0P,
 Butyrolactone methacrylate-2-ethyl-2-adamantyl methacrylate
 copolymer 262617-13-0P **288303-55-9P** 325143-38-2P
 364736-22-1P 391232-36-3P 398140-43-7P 398140-45-9P
 398140-47-1P 398140-50-6P 398140-52-8P 398140-55-1P
 398140-57-3P 398140-59-5P 398140-64-2P 398140-69-7P
 398140-73-3P 398140-77-7P **398140-78-8P** 398140-79-9P
 398140-81-3P 398140-88-0P, tert-Butyl norbornenecarboxylate-
 maleic anhydride-2-methyl-2-adamantyl acrylate-norbornene lactone
 acrylate copolymer 398140-89-1P 398140-94-8P 398141-00-9P
 398141-11-2P 398141-13-4P 398141-14-5P 405509-18-4P
 430436-66-1P 430436-67-2P 430436-68-3P 430436-70-7P
 430436-72-9P 430436-74-1P 430436-76-3P 430436-78-5P
 430436-79-6P 430436-81-0P 430436-82-1P 430436-84-3P
 430436-85-4P 430436-86-5P 430436-87-6P 430436-89-8P
 430436-90-1P 430436-91-2P 430436-92-3P 430436-94-5P
 430436-95-6P 430436-97-8P 430436-98-9P 430436-99-0P
 430437-01-7P 430437-03-9P 430437-04-0P 430437-05-1P
 430437-09-5P 430437-11-9P 430437-12-0P 430437-13-1P
 430437-14-2P 430437-15-3P 430437-17-5P 430437-18-6P
 430437-19-7P 430437-21-1P 430437-24-4P 431062-12-3P
 431062-14-5P 431062-16-7P 431062-17-8P 431062-18-9P
 431062-20-3P 431062-22-5P 462109-80-4P 471257-28-0P
 503003-64-3P 597553-03-2P 597553-04-3P

(pos. photoresist composition containing)

REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L18 ANSWER 19 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:653458 HCAPLUS

DOCUMENT NUMBER: 139:188312

TITLE: **Positive DUV resist**
 compositions with suppressed roughness of
 etched surfaces and good dissoln. and defocus
 latitude in contact hole pattern formation

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 51 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

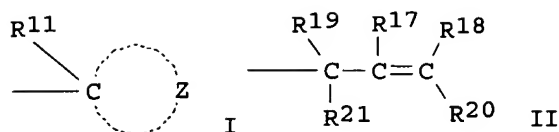
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003233188	A2	20030822	JP 2002-32449	2002 0208
PRIORITY APPLN. INFO.:				2002 0208
JP 2002-32449				

GI



AB The **pos. resist** compns. contain (A) resins whose dissoln. rate toward alkali developers increase with acids, bearing 2 types of specific repeating units bearing alicyclic groups and (B) compds. which generate acids by irradiation of actinic ray or radiation. Resins A contain (A1) repeating units represented by $\text{CH}_2\text{CR}_1\text{ACO}_2\text{ALG}$ [$\text{R}_1 = \text{H, Me}$; $\text{A} = \text{single bond, linkage}$; $\text{ALG} = \text{I, CR}_{12}\text{R}_{13}\text{R}_{14}, \text{CH}(\text{OR}_{15})\text{R}_{16}, \text{II, and CR}_{22}\text{R}_{25}\text{CHR}_{23}\text{COR}_{24}$; $\text{R}_{11} = \text{Me, Et, n-Pr, i-Pr, n-Bu, sec-Bu}$; $\text{Z} = \text{atom. group necessary for forming alicyclic hydrocarbyl (ACHC) together with C}$; $\text{R}_{12}\text{-R}_{16} = \text{C1-4 alkyl, ACHC}$; ≥ 1 of $\text{R}_{12}\text{-R}_{14}$ and R_{15} and/or R_{16} show ACHC; $\text{R}_{17}\text{-R}_{21} = \text{H, C1-4 alkyl, alkycyclic hydrocarbyl}$; ≥ 1 of $\text{R}_{17}\text{-R}_{21}$ show ACHC; R_{19} and/or $\text{R}_{21} = \text{C1-4 alkyl, ACHC}$; $\text{R}_{22}\text{-R}_{25} = \text{C1-4 alkyl, alicyclic hydrocarbyl}$; ≥ 1 of $\text{R}_{22}\text{-R}_{25} = \text{ACHC}$; R_{23} and R_{24} may be bonded to each other and form ring] and (A2) repeating units represented by $\text{CH}_2\text{CR}_2\text{CO}_2\text{A}_1\text{R}_3\text{A}_2\text{CO}_2\text{R}_4$ ($\text{R}_2 = \text{H, alkyl}$; $\text{R}_3 = \text{ACHC}$; $\text{R}_4 = \text{chain-type tertiary alkyl, 1-alkoxyalkyl, tetrahydropyranyl, tetrahydrofuranyl}$; $\text{A}_1, \text{A}_2 = \text{single bond, alkylene, ether, carbonyl, ester}$).

IT 579510-07-9P

(**pos. DUV resist** compns. with suppressed roughness of etched surfaces and good dissoln. and defocus latitude in contact hole pattern formation)

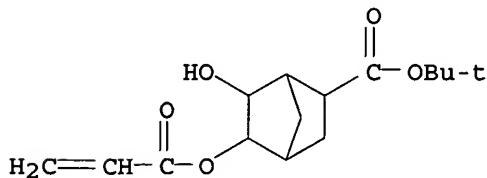
RN 579510-07-9 HCAPLUS

CN Bicyclo[2.2.1]heptane-2-carboxylic acid, 6-hydroxy-5-[(1-oxo-2-propenyl)oxy]-, 1,1-dimethylethyl ester, polymer with 4,5-dimethyl-7-oxo-6-oxabicyclo[3.2.1]oct-4-yl 2-methyl-2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-methyl-2-propenoate and octahydro-1,2(or 2,3)-dihydroxy-4,7-methano-1H-inden-5-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

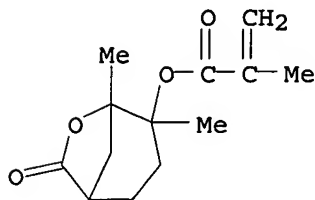
CRN 579510-06-8

CMF C15 H22 O5



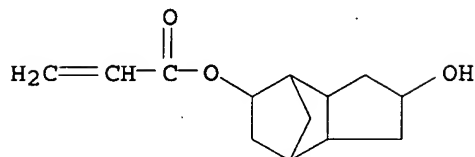
CM 2

CRN 329364-29-6
CMF C13 H18 O4



CM 3

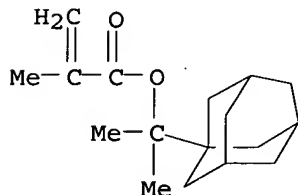
CRN 309260-45-5
CMF C13 H18 O4
CCI IDS



D1-OH

CM 4

CRN 279218-76-7
CMF C17 H26 O2



IC ICM G03F007-039
ICS H01L021-027
CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
ST acrylic polymer alicyclic ester DUV resist; pos deep UV
resist acrylic polymer; adamantane norbornane lactone
acrylic polymer resist
IT Positive photoresists
(DUV; pos. DUV resist compns. with
suppressed roughness of etched surfaces and good dissoln. and

defocus latitude in contact hole pattern formation)

IT 144317-44-2 258342-00-6 258872-05-8 284474-28-8
 301153-77-5 301153-78-6 338445-26-4 391232-40-9
 454471-15-9 470482-89-4 474510-73-1 508182-59-0
 (photoacid generator; pos. DUV resist
 compns. with suppressed roughness of etched surfaces and good
 dissoln. and defocus latitude in contact hole pattern
 formation)

IT 579510-03-5P 579510-04-6P 579510-05-7P 579510-07-9P
 579510-08-0P 579510-09-1P 579510-11-5P 581097-82-7P
 581097-83-8P 581097-84-9P
 (pos. DUV resist compns. with suppressed
 roughness of etched surfaces and good dissoln. and defocus
 latitude in contact hole pattern formation)

L18 ANSWER 20 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:454620 HCAPLUS

DOCUMENT NUMBER: 139:28640

TITLE: Positive-working chemically amplified
 photoresist composition and method of forming
 resist pattern from the same

INVENTOR(S): Iwai, Takeshi; Kubota, Naotaka; Fujimura,
 Satoshi; Miyairi, Miwa; Hada, Hideo

PATENT ASSIGNEE(S): Tokyo Ohka Kogyo Co., Ltd., Japan

SOURCE: PCT Int. Appl., 50 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003048861	A1	20030612	WO 2002-JP12524	2002 1129
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
JP 2003241385	A2	20030827	JP 2002-201310	2002 0710
EP 1452917	A1	20040901	EP 2002-788695	2002 1129
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
TW 573230	B	20040121	TW 2002-91134954	2002

US 2004110085	A1	20040610	US 2003-467130	1202
				2003
				0801
US 2005095535	A1	20050505	US 2004-4798	2004
				1207
PRIORITY APPLN. INFO.:			JP 2001-369341	A
				2001
				1203
			JP 2001-382126	A
				2001
				1214
			JP 2002-201310	A
				2002
				0710
			WO 2002-JP12524	W
				2002
				1129
			US 2003-467130	A1
				2003
				0801

AB The invention relates to a **pos. resist** composition comprising (A) a resin ingredient which has ester side chains having an acid-dissociating dissoln.-inhibitive group containing a polycyclic group and has structural units derived from a (meth)acrylic ester in the main chain and which comes to have enhanced alkali solubility by the action of an acid, (B) an acid generator ingredient which generates an acid upon exposure to light, and (C) an organic solvent, the composition being of the chemical amplification type wherein the ingredient (A) has both structural units derived from a (meth)acrylic ester and structural units derived from an acrylic ester. This resist composition gives a resist pattern which is reduced in surface roughness and line edge roughness during etching and has excellent resolution and a wide focal-depth range.

IT 537705-97-8

(resin; pos.-working chemical amplified photoresist composition)

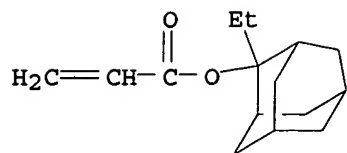
RN 537705-97-8 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl ester, polymer with 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-propenoate, hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 303186-14-3

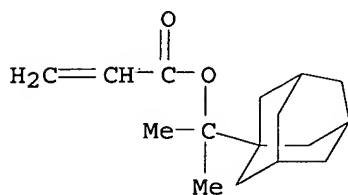
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CM 2

CRN 300833-10-7

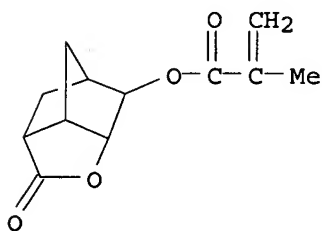
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CM 3

CRN 254900-07-7

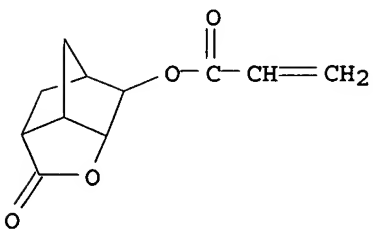
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CM 4

CRN 242129-35-7

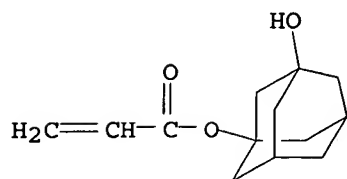
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CM 5

CRN 216581-76-9

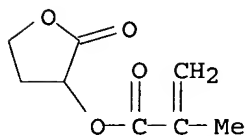
CMF C13 H18 O3



CM 6

CRN 195000-66-9

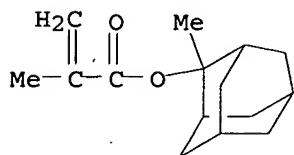
CMF C8 H10 O4



CM 7

CRN 177080-67-0

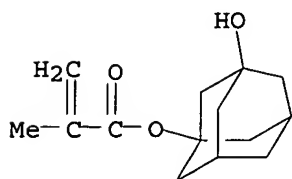
CMF C15 H22 O2



CM 8

CRN 115372-36-6

CMF C14 H20 O3

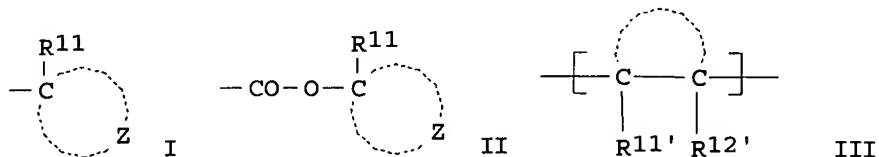


IC ICM G03F007-039
 ICS H01L021-027
 CC 74-5 (Radiation Chemistry, Photochemistry, and
 Photographic and Other Reprographic Processes)
 ST **pos resist compn**
 IT Positive photoresists
 (chemical amplified; **pos. resist** composition and
 method of forming resist pattern from the same)
 IT 485391-35-3 537705-97-8 537705-98-9
 (resin; pos.-working chemical amplified photoresist composition)
 IT 537705-96-7
 (resin; pos.-working chemical amplified photoresist composition)
 REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE
 FOR THIS RECORD. ALL CITATIONS AVAILABLE
 IN THE RE FORMAT

L18 ANSWER 21 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2003:412089 HCAPLUS
 DOCUMENT NUMBER: 139:14955
 TITLE: Chemically amplified far-UV-sensitive
positive resists producing
 defect-free patterns
 INVENTOR(S): Fujimori, Toru
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 93 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003156845	A2	20030530	JP 2001-353163	2001 1119
PRIORITY APPLN. INFO.: JP 2001-353163				2001 1119

GI



AB The resists, for ≤ 220 -nm far-UV photolithog., comprise (A) alicyclic hydrocarbon resins increasing solubility in alkalis upon acid action, (B) radiation-sensitive acid generators, and (C) F-containing and carboxyl-free compds., where the resins have I, II (R11 = Me, Et, Pr, Bu; Z = alicycle), CR12R13R14, CH(OR15)R16,

CR19R21CR17:CR18R20 (R12-R21 = C1-4 alkyl, alicyclic hydrocarbyl, ≥ 1 of R12-R14, R15 and/or R16, and ≥ 1 of R17-R21 is alicyclic hydrocarbyl), or CR22R25CHR23COR24 (R22-R25 = C1-4 alkyl, alicyclic hydrocarbyl, ≥ 1 of them is alicyclic hydrocarbyl) and III (R'11, R'12 = H, cyano, halo, alkyl; Z' = alicyclic group).

IT 288303-55-9

(chemical amplified far-UV pos. resists containing polymers having alicyclic groups in main and/or side chains and sp. F compds.)

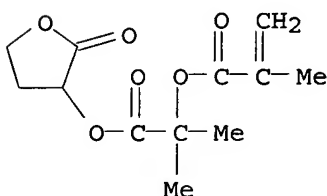
RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 288303-54-8

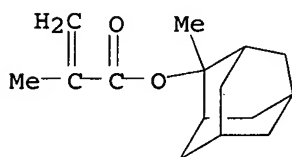
CMF C12 H16 O6



CM 2

CRN 177080-67-0

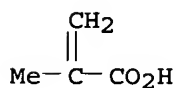
CMF C15 H22 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS G03F007-004; H01L021-027

- CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38
- IT Photoresists
(UV, far-UV, pos. working; chemical amplified far-UV **pos. resists** containing polymers having alicyclic groups in main and/or side chains and sp. F compds.)
- IT **Resists**
(pos.-working, UV, far-UV; chemical amplified far-UV **pos. resists** containing polymers having alicyclic groups in main and/or side chains and sp. F compds.)
- IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl methacrylate copolymer 391232-36-3P 398140-57-3P 398140-88-0P, tert-Butyl norbornenecarboxylate-maleic anhydride-2-methyl-2-adamantyl acrylate-norbornenelactone acrylate copolymer
(chemical amplified far-UV **pos. resists** containing polymers having alicyclic groups in main and/or side chains and sp. F compds.)
- IT 375-01-9 382-31-0 422-05-9 423-46-1 428-59-1 677-69-0 678-26-2 755-02-2 813-75-2
(chemical amplified far-UV **pos. resists** containing polymers having alicyclic groups in main and/or side chains and sp. F compds.)
- IT 288303-55-9 364736-22-1 391613-77-7 398140-36-8 398140-38-0 398140-40-4 398140-43-7 398140-45-9 398140-47-1 398140-48-2 398140-50-6 398140-52-8 398140-54-0 398140-55-1 398140-59-5 398140-60-8 398140-62-0 398140-64-2 398140-65-3 398140-68-6 398140-69-7 398140-71-1 398140-72-2 398140-73-3 398140-74-4 398140-76-6 398140-77-7 398140-78-8 398140-79-9 398140-80-2 398140-81-3 398140-82-4 398140-84-6 398140-86-8 398140-87-9 398140-89-1 398140-90-4 398140-91-5 398140-92-6 398140-93-7 398140-94-8 398140-95-9 398140-97-1 398140-98-2 398140-99-3 398141-00-9 398141-03-2 398141-04-3 398141-06-5 398141-07-6 398141-08-7 398141-10-1 398141-11-2 398141-13-4 398141-14-5 398141-16-7 398152-52-8 405509-18-4 405509-25-3 405509-29-7 405509-30-0 406722-63-2 482609-97-2 524699-47-6 532989-17-6
(chemical amplified far-UV **pos. resists** containing polymers having alicyclic groups in main and/or side chains and sp. F compds.)
- IT 66003-78-9 133710-62-0 144317-44-2 160481-39-0 194999-85-4 227199-92-0 241806-75-7 258872-05-8 270563-93-4 270563-96-7 389859-76-1 398141-17-8 398141-18-9
(photoacid generators; chemical amplified far-UV **pos. resists** containing polymers having alicyclic groups in main and/or side chains and sp. F compds.)

L18 ANSWER 22 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:317556 HCAPLUS

DOCUMENT NUMBER: 138:346480

TITLE: **Positive** chemically amplified **resist** compositions having improved edge roughness of patterns and high sensitivity

INVENTOR(S): Fujimori, Toru

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

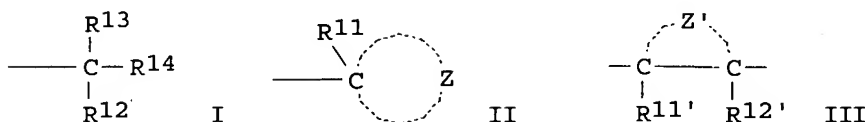
SOURCE: Jpn. Kokai Tokkyo Koho, 96 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003122010	A2	20030425	JP 2001-318242	2001 1016

PRIORITY APPLN. INFO.: JP 2001-318242

2001
1016

GI



AB The compns. contain (A) resins bearing alicyclic hydrocarbon groups and whose rate of dissoln. in alkali developers increase by acids, and containing ≥ 1 repeating units involving alicyclic hydrocarbons represented by general formulas I, CR12R13R14, CH(OR15)R16, CR19R21CR17:CR18R20, CR22R25CHR23C(O)R24, and II (R11 = Me, Et, Pr, iso-Pr, Bu, iso-Bu, sec-butyl; Z = atom. group necessary for forming alicyclic hydrocarbon group with carbon atom; R12-R16 = C1-4 alkyl, alicyclic hydrocarbyl; ≥ 1 of R12-R14, R15, and R16 are alicyclic hydrocarbyl; R17-R21 = H, any description given for R12-R16; R19 and/or R21 = C1-4 alkyl, alicyclic hydrocarbyl; R22-R25 = C1-4 alkyl, alicyclic hydrocarbyl; ≥ 1 of R22-R25 are alicyclic hydrocarbyl; R23 and R24 may be bonded together and form ring) and repeating units represented by general formula III [R11', R12' = H, cyano, halo, (substituted) alkyl; Z' = atom. group involving bonded 2 carbon atom (C-C) for forming (substituted) alicyclic structure], (B) compds. generating acids by actinic light or radiation, and (C) compds. which accelerates dissoln. rate of films toward alkali developers. Preferably, the general formula III may be norbornene derivs. Preferably, the compds. (C) are selected from carboxylic acids, alcs., sulfonamides, nitriles, malonic acid derivs., and malonic acid esters. Preferably, the compns. further contain (D) mixed solvents composed of HO-containing solvents and HO-free solvents. The compns. are suitable for exposure to deep UV of wavelength ≤ 200 nm, especially for ArF excimer laser light.

IT 288303-55-9

(pos. chemical amplified resist compns. containing cycloolefin polymers and having improved edge roughness of patterns and high sensitivity)

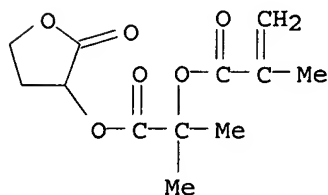
RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 288303-54-8

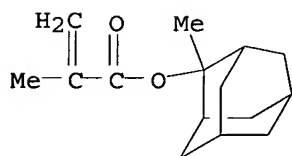
CMF C12 H16 O6



CM 2

CRN 177080-67-0

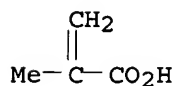
CMF C15 H22 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS C08F220-18; C08F232-00; H01L021-027

CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 38

ST pos chem amplified photoresist; deep UV **resist**
pos methacrylate polymer; cyclic olefin polymer deep UV
resist

IT Positive photoresists
(pos. chemical amplified **resist** compns. containing
cycloolefin polymers and having improved edge roughness of
patterns and high sensitivity)

IT 77-95-2 99-66-1 110-59-8, Pentanenitrile 110-61-2,

Butanedinitrile 112-92-5, 1-Octadecanol 141-82-2, Propanedioic acid, uses 143-08-8, 1-Nonanol 453-20-3 505-52-2, Tridecanedioic acid 506-12-7, Heptadecanoic acid 516-05-2 534-59-8 589-55-9, 4-Heptanol 601-75-2 608-39-9 609-02-9 609-08-5 629-60-7, Tridecanenitrile 646-30-0, Nonadecanoic acid 765-04-8, 1,11-Undecanediol 828-51-3 1619-62-1 1871-96-1, Decanedinitrile 2243-27-8, Nonanenitrile 3144-04-5, 1-Butanesulfonamide 3586-55-8 4172-97-8 4250-38-8, Nonacosanoic acid 4352-58-3 5422-52-6 6006-37-7, Tridecanedinitrile 10044-27-6 10347-88-3 13706-71-3 14631-44-8 17854-63-6 19758-33-9 20654-46-0 21101-88-2 27132-23-6 30893-24-4 36976-70-2 39269-10-8 41890-52-2 54321-41-4 59086-77-0 62472-38-2 65501-71-5, 1-Octanesulfonamide 67796-27-4 71420-37-6 90220-86-3, 1,2,3,4-Butanetetracarbonitrile 101084-14-4 104319-35-9 135290-24-3 219925-61-8, 2,2-Butanediol 514848-21-6 514848-22-7 514848-23-8 514848-24-9, 1,2,3,5-Cyclohexanetetracarbonitrile 514848-25-0 514848-27-2 514848-28-3

(dissoln. accelerator; **pos.** chemical amplified **resist** compns. containing cycloolefin polymers and having improved edge roughness of patterns and high sensitivity)

IT 144317-44-2 160481-39-0 227199-92-0 241806-75-7
258872-05-8 301153-77-5 301153-78-6 301664-71-1
391232-40-9 398141-17-8 398141-18-9 414911-33-4

(photoacid generator; **pos.** chemical amplified **resist** compns. containing cycloolefin polymers and having improved edge roughness of patterns and high sensitivity)

IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl methacrylate copolymer 391232-36-3P 398140-57-3P 398140-88-0P

(**pos.** chemical amplified **resist** compns. containing cycloolefin polymers and having improved edge roughness of patterns and high sensitivity)

IT 288303-55-9 364736-22-1 391613-77-7 398140-36-8
398140-38-0 398140-40-4 398140-43-7 398140-45-9
398140-47-1 398140-48-2 398140-50-6 398140-52-8
398140-54-0 398140-55-1 398140-59-5 398140-60-8
398140-62-0 398140-64-2 398140-65-3 398140-68-6
398140-69-7 398140-71-1 398140-72-2 398140-73-3
398140-76-6 398140-77-7 398140-78-8 398140-79-9
398140-80-2 398140-82-4 398140-84-6 398140-87-9
398140-89-1 398140-90-4 398140-91-5 398140-92-6
398140-93-7 398140-94-8 398140-95-9 398140-97-1
398140-98-2 398140-99-3 398141-00-9 398141-04-3
398141-06-5 398141-07-6 398141-08-7 398141-10-1
398141-11-2 398141-14-5 398141-16-7 398152-52-8
405509-18-4 405509-20-8 405509-21-9 405509-22-0
405509-29-7 406722-63-2 514848-13-6 514848-14-7
514848-15-8 514848-16-9 514848-17-0 514848-19-2
514848-20-5

(**pos.** chemical amplified **resist** compns. containing cycloolefin polymers and having improved edge roughness of patterns and high sensitivity)

IT 96-48-0, γ -Butyrolactone 97-64-3, Ethyl lactate 108-94-1, Cyclohexanone, uses 110-43-0, 2-Heptanone 1320-67-8, Propylene glycol methyl ether 14272-48-1 84540-57-8, Propylene glycol monomethyl ether acetate

(solvent; **pos.** chemical amplified **resist** compns. containing cycloolefin polymers and having improved edge

roughness of patterns and high sensitivity)

L18 ANSWER 23 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:272174 HCAPLUS

DOCUMENT NUMBER: 138:311560

TITLE: **Positive-working resist**
composition containing resin made from three
types of repeating units

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 48 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

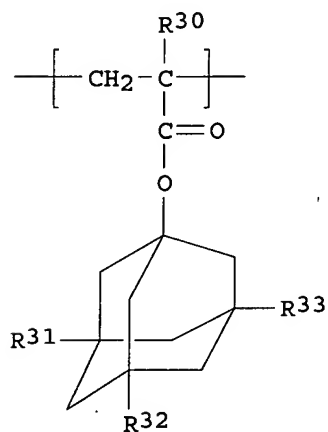
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003107710	A2	20030409	JP 2001-301795	2001 0928
US 2003108809	A1	20030612	US 2002-253484	2002 0925
US 6787282	B2	20040907		
PRIORITY APPLN. INFO.:			JP 2001-301795	A 2001 0928

GI



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AB The **pos.-working resist** composition comprises (A) a resin having repeating units $[\text{H}_2\text{C}-\text{CR}(\text{AC}(:\text{O})\text{O}-\text{ALG})]$ ($\text{R}_1 = \text{H}, \text{Me}$; $\text{A} = \text{bond}$; $\text{ALG} = \text{substituent}$), $[\text{H}_2\text{C}-\text{CR}(\text{AC}(:\text{O})\text{O}-\text{BLG})]$ ($\text{BLG} = \text{tert-alkyl}$), and I ($\text{R}_{30} = \text{H}, \text{Me}$; and $\text{R}_{31}-33 = \text{H}, \text{OH}, \text{alkyl}$) and increases its solubility in an alkali developer and (B) a photoacid.

IT 508182-48-7

(resin; **pos.**-working **resist** composition containing
resin made from three types of repeating units and photoacid)

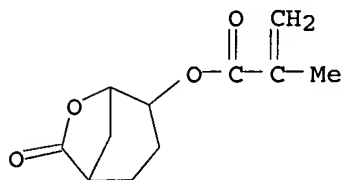
RN 508182-48-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl
ester, polymer with 3-hydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl
2-propenoate, 7-oxo-6-oxabicyclo[3.2.1]oct-4-yl
2-methyl-2-propenoate and 1,1,2-trimethylpropyl
2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 335163-70-7

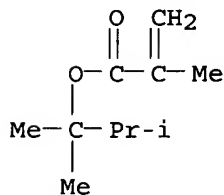
CMF C11 H14 O4



CM 2

CRN 260365-45-5

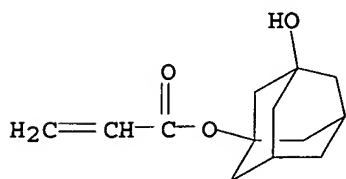
CMF C10 H18 O2



CM 3

CRN 216581-76-9

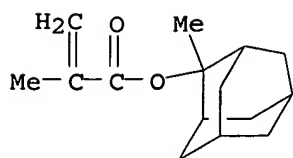
CMF C13 H18 O3



CM 4

CRN 177080-67-0

CMF C15 H22 O2



IC ICM G03F007-039
ICS C08F220-12; H01L021-027
CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38
IT Photoresists
Resists
(pos.-working resist composition containing resin
made from three types of repeating units and photoacid)
IT 241806-75-7 258872-05-8 284474-28-8 301153-78-6
301664-71-1 391232-40-9 454471-07-9 474510-73-1
508182-57-8 508182-59-0
(photoacid; pos.-working resist composition
containing resin made from three types of repeating units and
photoacid)
IT 508182-46-5P
(resin; pos.-working resist composition containing
resin made from three types of repeating units and photoacid)
IT 508182-47-6 508182-48-7 508182-49-8
508182-50-1 508182-51-2 508182-52-3
508182-54-5 508182-55-6 508182-56-7
(resin; pos.-working resist composition containing
resin made from three types of repeating units and photoacid)

L18 ANSWER 24 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:241052 HCAPLUS
DOCUMENT NUMBER: 138:262693
TITLE: Positive photoresist composition
INVENTOR(S): Fujimori, Toru; Kawabe, Yasumasa
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Eur. Pat. Appl., 101 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1296190	A1	20030326	EP 2002-21204	2002 0918
JP 2003167333	A2	20030613	JP 2002-563	2002 0107

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,
MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ,
EE, SK

US 2003134225

A1

20030717

US 2002-244070

2002
0916

PRIORITY APPLN. INFO.:

JP 2001-285180

A

2001
0919

JP 2002-563

A

2002
0107

AB A **pos. resist** composition comprises the components of: (A) a compound capable of generating an acid upon irradiation with one of an actinic ray and a radiation; (B) a resin that is insol. or slightly soluble in alkalis, but becomes alkali-soluble under an action of an acid; (C) a basic compound; and (D) a compound comprising at least three hydroxyl groups or at least three substituted hydroxyl groups, and comprising at least one cyclic structure. The present invention relates to a **pos. resist** composition used in a process of manufacture semiconductors and which far UV light with wavelengths ≤ 250 nm is used as an exposure light source or an electron beam is used as an irradiation source.

IT 288303-55-9P

(pos. photoresist composition containing)

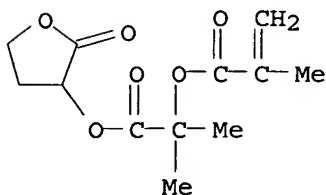
RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 288303-54-8

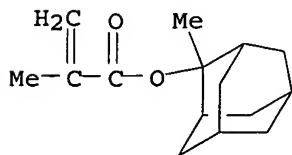
CMF C12 H16 O6



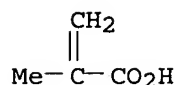
CM 2

CRN 177080-67-0

CMF C15 H22 O2



CM 3

CRN 79-41-4
CMF C4 H6 O2

IC ICM G03F007-039
CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38, 76
IT 24979-70-2DP, VP15000, reaction product with Et vinyl ether
129674-22-2P 159296-87-4P 177034-73-0P 177034-75-2P
199432-82-1P 200808-68-0P 228101-60-8P 250378-10-0P,
Butyrolactone methacrylate-2-ethyl-2-adamantylmethacrylate
copolymer 262617-13-0P **288303-55-9P** 288620-13-3P
288620-15-5P 289706-85-0P 325143-38-2P 326591-96-2P
364736-22-1P 372968-15-5P 391232-36-3P 398140-38-0P
398140-43-7P 398140-45-9P 398140-47-1P 398140-50-6P
398140-52-8P 398140-55-1P 398140-57-3P 398140-59-5P
398140-64-2P 398140-69-7P 398140-73-3P 398140-77-7P
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430436-78-5P 430436-79-6P 430436-81-0P 430436-82-1P
430436-84-3P 430436-85-4P 430436-86-5P 430436-87-6P
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430437-24-4P 431062-12-3P 431062-14-5P 431062-16-7P
431062-17-8P 503003-64-3P 503003-65-4P

(pos. photoresist composition containing)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L18 ANSWER 25 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:200567 HCAPLUS
DOCUMENT NUMBER: 138:245599
TITLE: **Positive-working resist**
composition from polymer having silicon in the
sidechain
INVENTOR(S): Uenishi, Kazuya
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 77 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

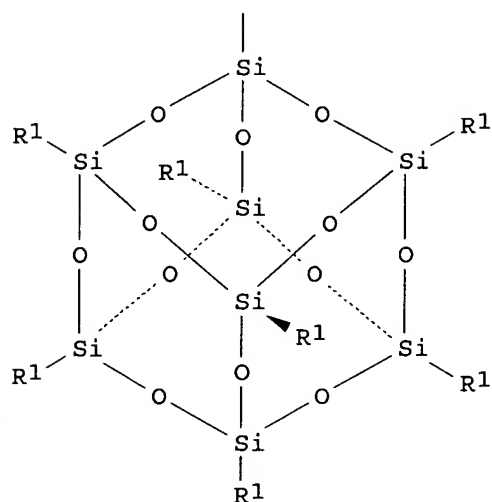
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2003076022	A2	20030314	JP 2001-267428	2001 0904

PRIORITY APPLN. INFO.:

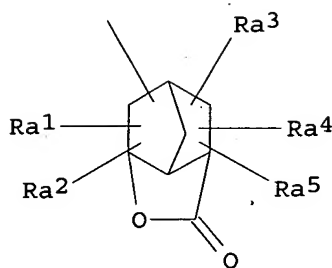
JP 2001-267428

2001
0904

GI



I



II

AB The **pos.-working resist** composition comprises (a) a polymer which has Si in the sidechain and is insol. or hardly soluble in an alkaline solution but becomes soluble in an aqueous alkaline solution upon the interaction with an acid and (b) a photoacid, wherein the component (a) is made up of a repeating unit having a sidechain I (R1 = alkyl, alkoxy, aryl, etc.) and a repeating unit having a sidechain such as II (R1a-5a = H, alkyl, cycloalkyl, alkenyl; and ≥ 2 of R1a-5a form rings by bonding together). The use of the component (a) provided excellent resist characteristics for far-UV exposure in semiconductor device fabrications.

IT 501646-04-4

(**pos.-working resist** composition from photoacid
and polymer having silicon in sidechain)

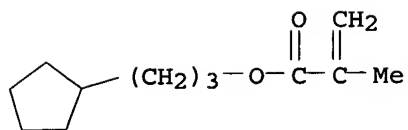
RN 501646-04-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3-cyclopentylpropyl ester, polymer
with 1,1-dimethylethyl 2-propenoate and hexahydro-6-methyl-2-oxo-
3,5-methano-2H-cyclopenta[b]furan-6-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 501646-00-0

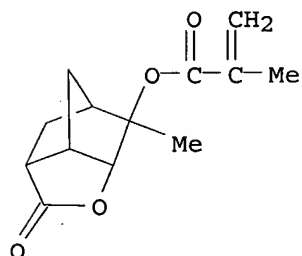
CMF C12 H20 O2



CM 2

CRN 469886-26-8

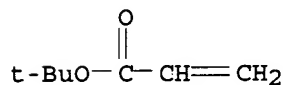
CMF C13 H16 O4



CM 3

CRN 1663-39-4

CMF C7 H12 O2



- IC ICM G03F007-039
ICS C08F220-18; C08F220-28; C08F230-08; G03F007-075; H01L021-027
- CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)
Section cross-reference(s): 35, 38, 76
- IT Photoresists
Resists
(pos.-working resist composition from photoacid and polymer having silicon in sidechain)
- IT 66003-78-9, Triphenylsulfonium trifluoromethanesulfonate
197447-16-8, Triphenylsulfonium-2,4,6-triisopropylphenylsulfonate
258341-99-0 336885-29-1
(photoacid; pos.-working resist composition from photoacid and polymer having silicon in sidechain)
- IT 177080-67-0 254900-07-7
(pos.-working resist composition from photoacid and polymer having silicon in sidechain)
- IT 501645-99-4P
(pos.-working resist composition from photoacid and polymer having silicon in sidechain)
- IT 501646-01-1 501646-02-2 501646-03-3 **501646-04-4**
501646-06-6 501646-08-8 **501646-09-9** 501646-10-2
501646-11-3 501646-12-4 501646-13-5

(pos.-working resist composition from photoacid
and polymer having silicon in sidechain)

L18 ANSWER 26 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:17562 HCAPLUS

DOCUMENT NUMBER: 138:98192

TITLE: **Positive DUV resist**
compositions having good SEM resistance, high
resolution, and wide defocus latitude

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 48 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003005375	A2	20030108	JP 2001-188415	2001 0621
TW 581941	B	20040401	TW 2002-91113481	2002 0620
PRIORITY APPLN. INFO.:			JP 2001-188414	A 2001 0621
			JP 2001-188415	A 2001 0621

AB The resist compns. contain (A) resins whose rate of dissoln. to alkali developers increase by acids and are composed of ≥ 2 mer units selected from (a1) butyrolactones, (a2) norbornane lactones, (a3) cyclohexane lactones, and (a4) adamantane lactones and (B) compds. which generate acids by actinic ray or radiation. The compns. have good SEM resistance (suppressed shrinkage under SEM observation), good resolution, and wide defocus latitude (DOF).

IT **483364-45-0P**

(2-component-type pos. DUV resist compns.
having good SEM resistance, high resolution, and wide defocus
latitude)

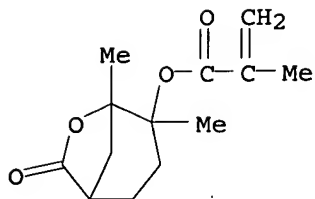
RN 483364-45-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 4,5-dimethyl-7-oxo-6-oxabicyclo[3.2.1]oct-4-yl ester, polymer with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-propenoate, 1-methyl-1-(4-methyl-2-oxocyclohexyl)ethyl 2-propenoate and octahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-6-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 329364-29-6

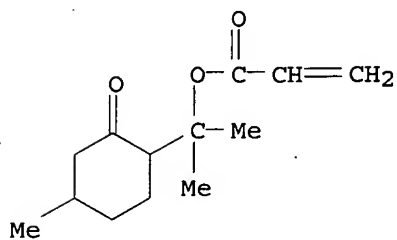
CMF C13 H18 O4



CM 2

CRN 312261-57-7

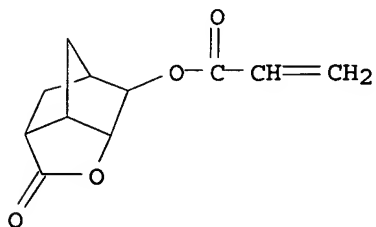
CMF C13 H20 O3



CM 3

CRN 242129-35-7

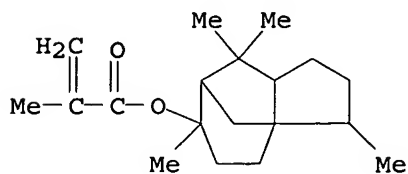
CMF C11 H12 O4



CM 4

CRN 239096-10-7

CMF C19 H30 O2



IC ICM G03F007-039

ICS C08F018-24; C08F020-28; C08F020-38; C08F020-42; C08F028-02;
H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

ST **pos** DUV **resist** lactone polymer SEM resistance;
chem amplified **pos** deep UV photoresist; lactone methacrylate
polymer deep UV resist; norbornane lactone methacrylate polymer
deep UV resist; butyrolactone methacrylate polymer deep UV resist

IT Positive photoresists
(deep UV; 2-component-type **pos.** DUV **resist**
comps. having good SEM resistance, high resolution, and wide
defocus latitude)

IT Sulfonium compounds
(photoacid generator; 2-component-type **pos.** DUV
resist comps. having good SEM resistance, high
resolution, and wide defocus latitude)

IT 483364-42-7P 483364-43-8P 483364-44-9P **483364-45-0P**
483364-46-1P 483364-47-2P 483364-48-3P 483364-50-7P
483364-51-8P 483367-38-0P 483367-40-4P 483367-41-5P
483367-42-6P
(2-component-type **pos.** DUV **resist** comps.
having good SEM resistance, high resolution, and wide defocus
latitude)

IT 66003-78-9 144089-15-6 241806-75-7 258872-05-8 284474-28-8
301153-77-5 301153-78-6 301525-08-6 301664-71-1
391232-40-9 398141-18-9 398141-23-6 454471-07-9
454471-15-9
(photoacid generator; 2-component-type **pos.** DUV
resist comps. having good SEM resistance, high
resolution, and wide defocus latitude)

L18 ANSWER 27 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:17561 HCAPLUS

DOCUMENT NUMBER: 138:98191

TITLE: **Positive DUV resist**
compositions having good SEM resistance, good
resolution, and wide defocus latitude

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 52 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2003005374	A2	20030108	JP 2001-188414	2001 0621
TW 581941	B	20040401	TW 2002-91113481	2002 0620
PRIORITY APPLN. INFO.:			JP 2001-188414	A 2001 0621

JP 2001-188415

A

2001

0621

AB The resist compns. contain (A) ≥ 2 resins whose rate of dissoln. to alkali developers increase by acids and are composed of ≥ 1 mer units selected from (a1) butyrolactones, (a2) norbornane lactones, (a3) cyclohexane lactones, and (a4) adamantane lactones and (B) compds. which generate acids by actinic ray or radiation, wherein mixts. of resins A contain ≥ 2 mer units of (a1) to (a4). The compns. have good SEM resistance (suppressed shrinkage under SEM observation), good resolution, and wide defocus latitude (DOF).

IT 482609-95-0P

(pos. DUV resist compns. containing blend lactone polymers having good SEM resistance, good resolution, and wide defocus latitude)

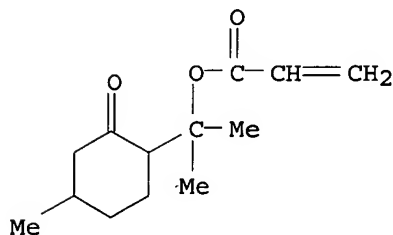
RN 482609-95-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 3,5-dihydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl ester, polymer with 1-methyl-1-(4-methyl-2-oxocyclohexyl)ethyl 2-propenoate, 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate and tetrahydro-4-methyl-2-oxo-2H-pyran-4-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 312261-57-7

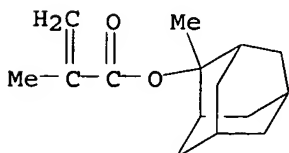
CMF C13 H20 O3



CM 2

CRN 177080-67-0

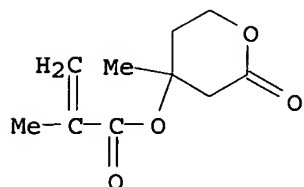
CMF C15 H22 O2



CM 3

CRN 177080-66-9

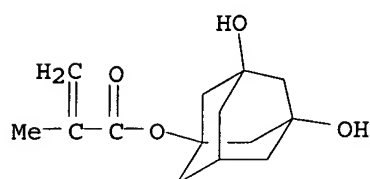
CMF C10 H14 O4



CM 4

CRN 115522-15-1

CMF C14 H20 O4



- IC ICM G03F007-039
ICS H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
- ST **pos** DUV resist lactone polymer blend; chem amplified **pos** deep UV photoresist; lactone methacrylate polymer deep UV resist; norbornane lactone methacrylate polymer deep UV resist; cyclohexane lactone methacrylate polymer deep UV resist; adamantane lactone methacrylate polymer deep UV resist
- IT Positive photoresists
(deep UV; **pos**. DUV resist compns. containing blend lactone polymers having good SEM resistance, good resolution, and wide defocus latitude)
- IT Sulfonium compounds
(photoacid generator; **pos**. DUV resist compns. containing blend lactone polymers having good SEM resistance, good resolution, and wide defocus latitude)
- IT 144089-15-6 144317-44-2 193345-23-2 206861-54-3
211517-08-7 231955-29-6 241806-75-7 258341-99-0
258872-05-8 284474-28-8 301525-08-6 301664-71-1
335385-81-4 347193-28-6 391232-40-9 398141-23-6
398141-61-2 414911-37-8 454471-07-9 454471-15-9
474510-73-1
(photoacid generator; **pos**. DUV resist compns. containing blend lactone polymers having good SEM resistance, good resolution, and wide defocus latitude)
- IT 482609-84-7P 482609-86-9P 482609-87-0P 482609-88-1P
482609-90-5P 482609-92-7P 482609-93-8P 482609-94-9P
482609-95-0P 482609-96-1P 482609-97-2P 482609-98-3P
482609-99-4P 482610-00-4P 482610-02-6P 482610-04-8P
482610-05-9P 482610-07-1P 482610-09-3P 482610-11-7P

482610-13-9P 482610-15-1P 482610-17-3P
 482610-19-5P 482610-23-1P 482610-26-4P 482610-28-6P
 482610-30-0P 482610-32-2P 482610-34-4P
 482610-37-7P 482610-39-9P 482620-88-2P 482620-89-3P
 482620-91-7P 482620-92-8P 482620-93-9P

(pos. DUV resist compns. containing blend
 lactone polymers having good SEM resistance, good resolution, and
 wide defocus latitude)

L18 ANSWER 28 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2003:14493 HCAPLUS

DOCUMENT NUMBER: 138:80689

TITLE: Positive DUV resist
 compositions having high sensitivity, good
 resolution, and less dependency on pattern
 density

INVENTOR(S): Kodama, Kunihiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 76 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2003005376	A2	20030108	JP 2001-188499	2001 0621
US 2003044717	A1	20030306	US 2002-174944	2002 0620
US 6808862	B2	20041026		
PRIORITY APPLN. INFO.:			JP 2001-188499	A 2001 0621

AB The compns. contain (A1) compds. which by actinic ray or radiation generate alkanesulfonic acids whose α -position of sulfonic acids are substituted with F, (A2) onium salts of alkanesulfonic acids whose α -position of sulfonic acids are not substituted with F, and (B) resins having single ring or polycyclic alicyclic hydrocarbon structures, whose rate of dissoln. in alkali developers increase by decomposition by acids. Preferably, A1 comprise sulfonium salts, A2 comprise sulfonium salts, iodonium salts, or ammonium salts, and B comprise resins having mer units bearing lactone structures.

IT 288303-55-9P

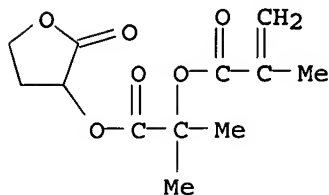
(pos. DUV resist compns. containing
 alkanesulfonic acid-based photoacid generators and alicyclic
 hydrocarbon polymers)

RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-
 [(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and
 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
 (CA INDEX NAME)

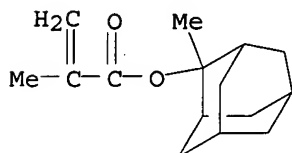
CM 1

CRN 288303-54-8
CMF C12 H16 O6



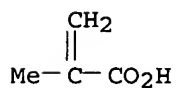
CM 2

CRN 177080-67-0
CMF C15 H22 O2



CM 3

CRN 79-41-4
CMF C4 H6 O2



- IC ICM G03F007-039
ICS G03F007-004; H01L021-027
- CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 38
- ST **pos** DUV resist lactone polymer photoacid generator; alkanesulfonic acid photoacid generator **pos** DUV resist; onium salt alkanesulfonic acid photoacid generator; alicyclic hydrocarbon polymer **pos** DUV; photoresist chem amplified **pos** alicyclic hydrocarbon polymer; fluorine substituted alkanesulfonic acid photoacid generator
- IT Onium compounds
Quaternary ammonium compounds, preparation
Sulfonium compounds
(alkanesulfonic acid; **pos.** DUV resist compns. containing alkanesulfonic acid-based photoacid generators and alicyclic hydrocarbon polymers)
- IT Sulfonic acids, preparation
(alkanesulfonic, onium salts; **pos.** DUV resist

- compns. containing alkanesulfonic acid-based photoacid generators and alicyclic hydrocarbon polymers)
- IT Positive photoresists
(deep UV; **pos.** DUV **resist** compns. containing alkanesulfonic acid-based photoacid generators and alicyclic hydrocarbon polymers)
- IT Onium compounds
(iodonium, alkanesulfonic acid; **pos.** DUV **resist** compns. containing alkanesulfonic acid-based photoacid generators and alicyclic hydrocarbon polymers)
- IT 66003-78-9P 144089-15-6P 144317-44-2P 145612-66-4P
160509-80-8P 177034-80-9P 227199-92-0P 231955-21-8P
241806-75-7P 258872-05-8P 284474-28-8P 301153-78-6P
301664-71-1P 338445-31-1P 340986-47-2P 383367-32-6P
391232-40-9P 398141-18-9P 398141-22-5P 398141-61-2P
398141-62-3P 414911-37-8P 454471-07-9P 454471-15-9P
454471-23-9P 460740-34-5P 481071-77-6P 481071-79-8P
481071-80-1P 481071-81-2P 481071-82-3P 481071-83-4P
481071-84-5P 481071-85-6P 481071-86-7P 481071-87-8P
481071-88-9P
(photoacid generator; **pos.** DUV **resist** compns. containing alkanesulfonic acid-based photoacid generators and alicyclic hydrocarbon polymers)
- IT 231955-29-6P 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl methacrylate copolymer **288303-55-9P**
364736-22-1P 391232-36-3P 391613-77-7P 398140-36-8P
398140-38-0P 398140-40-4P 398140-43-7P 398140-45-9P
398140-47-1P 398140-48-2P 398140-50-6P 398140-52-8P
398140-55-1P 398140-57-3P 398140-59-5P 398140-60-8P
398140-62-0P 398140-64-2P 398140-65-3P 398140-68-6P
398140-69-7P 398140-71-1P 398140-72-2P 398140-73-3P
398140-74-4P 398140-76-6P 398140-77-7P **398140-78-8P**
398140-79-9P 398140-80-2P 398140-81-3P 398140-82-4P
398140-84-6P **398140-85-7P** 398140-86-8P 398140-87-9P
405509-18-4P 405509-19-5P **405509-25-3P**
(**pos.** DUV **resist** compns. containing alkanesulfonic acid-based photoacid generators and alicyclic hydrocarbon polymers)
- IT 70-11-1, Phenacyl bromide 1493-13-6, Trifluoromethanesulfonic acid 14067-34-6, Copper benzoate 29420-49-3, Potassium perfluorobutanesulfonate 52908-55-1 194999-85-4
(preparation of photoacid generator from; **pos.** DUV **resist** compns. containing alkanesulfonic acid-based photoacid generators and alicyclic hydrocarbon polymers)

L18 ANSWER 29 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:976088 HCAPLUS

DOCUMENT NUMBER: 138:63822

TITLE: Positive photoresist compositions having high sensitivity, suppressed dependency on densities, and good dry etching resistance for micro-photofabrication

INVENTOR(S): Sato, Kenichiro; Uenishi, Kazuya

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 48 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

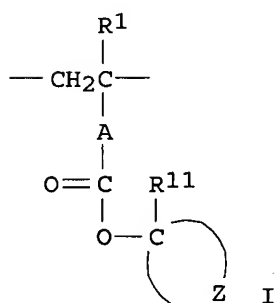
LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002372784	A2	20021226	JP 2002-101333	2002 0403
PRIORITY APPLN. INFO.:			JP 2001-107304	A 2001 0405

GI



AB The pos. photoresist compns. for DUV lithog., especially using ArF excimer laser light, contain (A) as acid-labile alkali-developable resins bearing alicyclic hydrocarbyl groups on side chains, resins containing repeating units represented by I and CH₂CR₁ACO₂CR₁₂R₁₃R₁₄ (II) (in I and II, R₁ = H, alkyl; A = linkage; in I; R₁₁ = C₁-4 alkyl; Z = atom. group necessary for forming alicyclic hydrocarbyl group together with C atom; in II, R₁₂-R₁₄ = hydrocarbyl; ≥1 of R₁₂-R₁₄ are alicyclic hydrocarbyl) and (B) compds. generating acids by irradiating actinic ray or radiation. Preferably, the compns. further contain (C) F-based or Si-based surfactants and (D) organic bases.

IT 479081-07-7P

(pos. DUV resist compns. having high sensitivity, suppressed dependency on densities, and good dry etching resistance)

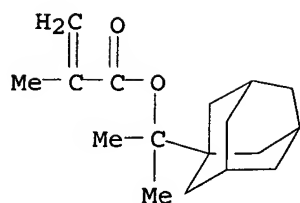
RN 479081-07-7 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate, 1-methyl-1-tricyclo[3.3.1.1^{3,7}]dec-1-ylethyl 2-methyl-2-propenoate and tetrahydro-2-oxo-3-furanyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 279218-76-7

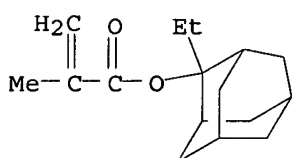
CMF C17 H26 O2



CM 2

CRN 209982-56-9

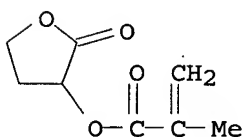
CMF C16 H24 O2



CM 3

CRN 195000-66-9

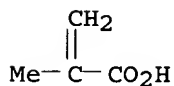
CMF C8 H10 O4



CM 4

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS C08F220-18; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT Amines, uses

(base; pos. DUV resist compns. having high sensitivity, suppressed dependency on densities, and good dry etching resistance)

IT Positive photoresists

Surfactants

(pos. DUV resist compns. having high sensitivity, suppressed dependency on densities, and good dry etching resistance)

IT Polysiloxanes, uses

(surfactant; pos. DUV resist compns. having high sensitivity, suppressed dependency on densities, and good dry etching resistance)

IT 60-80-0, Antipyrine 102-82-9, Tributylamine 3001-72-7,
1,5-Diazabicyclo[4.3.0]-5-nonene 24544-04-5,
2,6-Diisopropylaniline 36631-19-3, Triphenylimidazole
41556-26-7, Bis(1,2,2,6,6-pentamethyl-4-piperidyl) sebacate
(base; pos. DUV resist compns. having high sensitivity, suppressed dependency on densities, and good dry etching resistance)

IT 66003-78-9 116808-67-4 138529-84-7 144089-15-6 144317-44-2
220155-94-2 241806-75-7 258342-00-6 258872-05-8
270563-93-4 284474-28-8 301153-78-6 301664-71-1
307531-76-6 312386-77-9 347193-28-6 391232-40-9
398141-19-0

(photoacid generator; pos. DUV resist compns. having high sensitivity, suppressed dependency on densities, and good dry etching resistance)

IT 479081-07-7P 479081-08-8P 479081-10-2P
479081-11-3P 479081-12-4P 479081-13-5P
479081-14-6P 479081-15-7P 479081-16-8P
479081-17-9P 479081-18-0P 479081-19-1P
479081-20-4P 479081-21-5P 479081-22-6P
479081-23-7P 479081-24-8P 479094-61-6P
(pos. DUV resist compns. having high sensitivity, suppressed dependency on densities, and good dry etching resistance)

IT 9016-45-9, Poly(oxyethylene) nonylphenyl ether 137462-24-9,
Megafac F 176 216679-67-3, Megafac R 08
(surfactant; pos. DUV resist compns. having high sensitivity, suppressed dependency on densities, and good dry etching resistance)

L18 ANSWER 30 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:963783 HCAPLUS

DOCUMENT NUMBER: 138:47312

TITLE: Positive resist composition

INVENTOR(S): Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 69 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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EP 1267210	A2	20021218	EP 2002-12454	2002 0611
EP 1267210	A3	20031008		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE,				

MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 US 2003077543 A1 20030424 US 2002-165976

2002
 0611

US 6852468 B2 20050208
 JP 2003177538 A2 20030627 JP 2002-170065

2002
 0611

PRIORITY APPLN. INFO.:

JP 2001-177158 A

2001
 0612

JP 2001-308717 A

2001
 1004

AB A pos. resist composition comprises: (A) a resin capable of increasing the solubility in an alkali developer by the action of acid, in which the resin contains (A1) a repeating unit having at least one of a dihydroxyadamantyl group and a trihydroxyadamantyl group and (A2) a repeating unit containing an acid-decomposable group having an alicyclic structure; and (B) a compound capable of generating an acid upon irradiation with one of an actinic ray and a radiation. The resin (A) contains the repeating unit (A1) and the repeating unit (A2) at a composition molar ratio: A1/A2 of 0.15-1.0, and a total content of the repeating unit (A1) and the repeating unit (A2) in the resin (A) is 40-70 mol.

IT 478837-36-4P

(pos. photoresist composition containing)

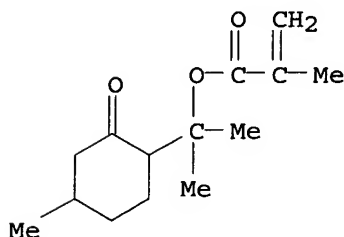
RN 478837-36-4 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl ester, polymer with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-methyl-2-propenoate, 1-methyl-1-(4-methyl-2-oxocyclohexyl)ethyl 2-methyl-2-propenoate and 3,5,7-trihydroxytricyclo[3.3.1.1^{3,7}]dec-1-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 312261-58-8

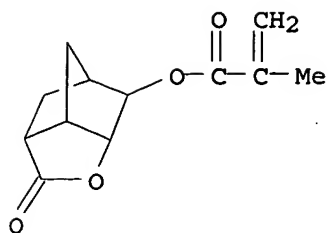
CMF C14 H22 O3



CM 2

CRN 254900-07-7

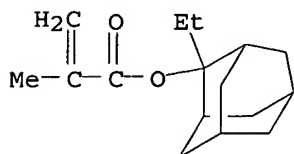
CMF C12 H14 O4



CM 3

CRN 209982-56-9

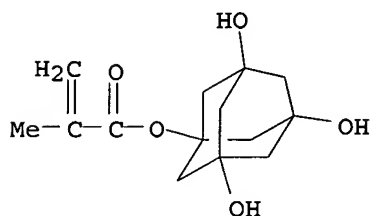
CMF C16 H24 O2



CM 4

CRN 115522-16-2

CMF C14 H20 O5



IC ICM G03F007-004

CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)

Section cross-reference(s): 35, 38

IT 478837-17-1P 478837-22-8P 478837-25-1P 478837-28-4P

478837-30-8P 478837-33-1P **478837-36-4P** 478837-38-6P**478837-41-1P** 478837-44-4P 478854-79-4P 478854-80-7P(pos. **photoresist** composition containing)

L18 ANSWER 31 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:848227 HCAPLUS

DOCUMENT NUMBER: 137:360309

TITLE: Radiation-sensitive **positive resist** compositions showing wide defocus latitude and less particle generation on storage

INVENTOR(S): Kodama, Kunihiro; Sato, Kenichiro

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 90 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 4
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002323767	A2	20021108	JP 2001-157366	2001 0525
US 2003017415	A1	20030123	US 2002-79414	2002 0222
US 6858370	B2	20050222		
TW 548523	B	20030821	TW 2002-91103178	2002 0222
PRIORITY APPLN. INFO.:			JP 2001-48602	A 2001 0223
			JP 2001-48783	A 2001 0223
			JP 2001-48784	A 2001 0223
			JP 2001-48880	A 2001 0223
			JP 2001-157366	A 2001 0525
			JP 2001-157367	A 2001 0525

AB The compns., especially suited for deep-UV lithog., comprise acid generators containing triarylsulfonium salts and phenathylsulfonium salts, alicyclic hydrocarbon resins increasing alkali solubility upon reaction with acids, bases, and fluoro and/or silicone surfactants,. The compns. may contain OH-bearing and -free solvent mixts.

IT 288303-55-9
 (radiation-sensitive pos. resist compns.
 showing wide defocus latitude and less particle generation on storage)

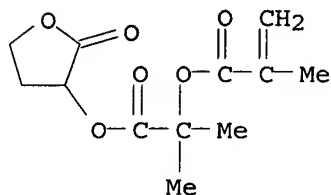
RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
 (CA INDEX NAME)

CM 1

CRN 288303-54-8

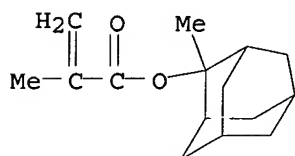
CMF C12 H16 O6



CM 2

CRN 177080-67-0

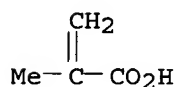
CMF C15 H22 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS C08K005-00; C08K005-36; C08L101-00; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, **Photochemistry**, and **Photographic** and Other Reprographic Processes)

Section cross-reference(s): 38, 76

IT Positive photoresists

(chemical amplified, deep-UV-sensitive; radiation-sensitive **pos. resist** compns. showing wide defocus latitude and less particle generation on storage)

IT Surfactants

(radiation-sensitive **pos. resist** compns. showing wide defocus latitude and less particle generation on storage)

IT Polysiloxanes, uses

(surfactants; radiation-sensitive **pos. resist** compns. showing wide defocus latitude and less particle generation on storage)

- IT 66003-78-9 144317-44-2 177034-80-9 241806-75-7 258872-05-8
 284474-28-8 301664-71-1 338445-24-2 398141-18-9
 398141-19-0 398141-23-6 414911-37-8 421555-71-7
 421555-72-8 454471-07-9 454471-11-5 454471-15-9
 454471-16-0 474510-73-1 474510-75-3 474510-76-4
 (photoacid generators; radiation-sensitive **pos.**
resist compns. showing wide defocus latitude and less
 particle generation on storage)
- IT 250378-10-0P, Butyrolactone methacrylate-2-ethyl-2-adamantyl
 methacrylate copolymer 391232-36-3P 398140-57-3P
 398140-88-0P
 (radiation-sensitive **pos.** **resist** compns.
 showing wide defocus latitude and less particle generation on
 storage)
- IT 484-47-9, 2,4,5-Triphenylimidazole 3040-44-6,
 1-Piperidineethanol 6674-22-2, DBU 19293-63-1,
 Dicyclohexylmethylamine 19600-49-8, Triphenylsulfonium acetate
 24544-04-5, 2,6-Diisopropylaniline
 (radiation-sensitive **pos.** **resist** compns.
 showing wide defocus latitude and less particle generation on
 storage)
- IT 96-48-0, γ -Butyrolactone 97-64-3, Ethyl lactate
 108-94-1, Cyclohexanone, uses 110-43-0, 2-Heptanone 763-69-9
 1320-67-8, Propylene glycol methyl ether 84540-57-8, Propylene
 glycol methyl ether acetate 288303-55-9 364736-22-1
 391613-77-7 398140-36-8 398140-38-0 398140-40-4
 398140-43-7 398140-45-9 398140-47-1 398140-48-2
 398140-50-6 398140-52-8 398140-55-1 398140-59-5
 398140-60-8 398140-62-0 398140-64-2 398140-65-3
 398140-68-6 398140-69-7 398140-71-1 398140-72-2
 398140-73-3 398140-74-4 398140-75-5 398140-76-6
 398140-77-7 398140-78-8 398140-79-9 398140-80-2
 398140-81-3 398140-82-4 398140-84-6 398140-85-7
 398140-86-8 398140-87-9 398140-89-1 398140-91-5
 398140-92-6 398140-93-7 398140-94-8 398140-95-9
 398140-97-1 398140-98-2 398140-99-3 398141-00-9
 398141-03-2 398141-04-3 398141-06-5 398141-08-7
 398141-10-1 398141-11-2 398141-13-4 398141-14-5
 398141-16-7 405509-18-4 405509-19-5 405509-29-7
 405509-30-0
 (radiation-sensitive **pos.** **resist** compns.
 showing wide defocus latitude and less particle generation on
 storage)
- IT 137462-24-9, Megafac F 176 216679-67-3, Megafac R 08
 (surfactants; radiation-sensitive **pos.** **resist**
 compns. showing wide defocus latitude and less particle
 generation on storage)

L18 ANSWER 32 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:792710 HCAPLUS
 DOCUMENT NUMBER: 137:317922
 TITLE: Positive photoresist compositions offering
 sharp patterns
 INVENTOR(S): Sato, Kenichiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 85 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002303984	A2	20021018	JP 2001-135245	2001 0502

PRIORITY APPLN. INFO.:

JP 2001-22010	A	2001 0130
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OTHER SOURCE(S): MARPAT 137:317922

AB The pos. photoresist compns. which give fine patterns with good profile, smoother line edges, and no top profile erosion for ArF excimer laser lithog. contain (A) resins which have alicyclic hydrocarbon groups and increase solubility speed to alkali developers by acids, (B) compds. which generate acids by actinic light or radiation, and (C) acetals shown as R101OCHMeOR102 or R102OCHMeOR102 (R101, R102 = alkyl which may have linear, branched, or cyclic substituents).

IT 288303-55-9P

(pos. photoresist compns. offering sharp patterns)

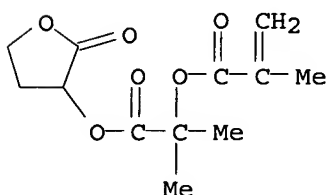
RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 288303-54-8

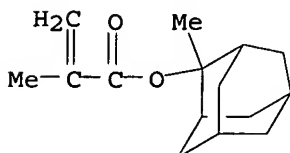
CMF C12 H16 O6



CM 2

CRN 177080-67-0

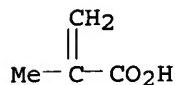
CMF C15 H22 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039
 ICS C08K005-00; C08K005-06; C08L101-02; G03F007-004; H01L021-027;
 C07C025-02; C07C043-303; C07C043-305; C07C307-02; C07C309-06;
 C07C317-28; C07C381-12
 CC 74-5 (Radiation Chemistry, Photochemistry, and
 Photographic and Other Reprographic Processes)
 ST pos photoresist chem amplified alicyclic hydrocarbon acetal; deep
 UV resist pos alicyclic hydrocarbon acetal
 IT 250378-10-0P 288303-55-9P 364736-22-1P 391232-36-3P
 391613-77-7P 398140-36-8P 398140-40-4P 398140-43-7P
 398140-45-9P 398140-47-1P 398140-48-2P 398140-50-6P
 398140-52-8P 398140-55-1P 398140-57-3P 398140-59-5P
 398140-60-8P 398140-62-0P 398140-64-2P 398140-65-3P
 398140-68-6P 398140-69-7P 398140-71-1P 398140-72-2P
 398140-73-3P 398140-74-4P 398140-76-6P 398140-77-7P
 398140-78-8P 398140-79-9P 398140-80-2P 398140-81-3P
 398140-82-4P 398140-84-6P 398140-85-7P 398140-86-8P
 398140-88-0P 398140-89-1P 398140-90-4P 398140-91-5P
 398140-92-6P 398140-93-7P 398140-94-8P 398140-95-9P
 398140-97-1P 398140-98-2P 398140-99-3P 398141-00-9P
 398141-03-2P 398141-04-3P 398141-05-4P 398141-06-5P
 398141-07-6P 398141-08-7P 398141-10-1P 398141-11-2P
 398141-13-4P 398141-14-5P 398141-16-7P 398152-52-8P
 405509-18-4P 405509-19-5P 405509-25-3P 405509-30-0P
 412015-86-2P 471257-28-0P
 (pos. photoresist comps. offering sharp patterns)

L18 ANSWER 33 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
 ACCESSION NUMBER: 2002:707220 HCAPLUS
 DOCUMENT NUMBER: 137:255320
 TITLE: Positive-working resist
 composition containing sulfonium salt compound
 as acid generator
 INVENTOR(S): Aogo, Toshiaki; Kodama, Kunihiro
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 67 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002265436	A2	20020918	JP 2001-65051	2001 0308

PRIORITY APPLN. INFO.:

JP 2001-65051

2001
0308

OTHER SOURCE(S): MARPAT 137:255320

AB The pos.-working resist composition comprises R1R2S+-CR3R4Y X- (R1,2 = alkyl, haloalkyl, cycloalkyl, etc.; R3,4 = H, alkyl, haloalkyl, etc.; Y = SOR5, SO2R5, etc.; R5 = alkyl, haloalkyl, etc.; and X- = sulfonic acid anion). The pos.-working resist composition also contains a photoacid and a resin which has an alicyclic group and an acid-decomposable group and increases the alkaline solubility upon contacting with an acid. Above compound has a high optical transmittance at ≤ 220 nm, in particular at 193 nm of ArF excimer laser, and exhibits high efficiency in generating an acid.

IT 460754-17-0P
(alkaline soluble resin contain in pos.-working resist)

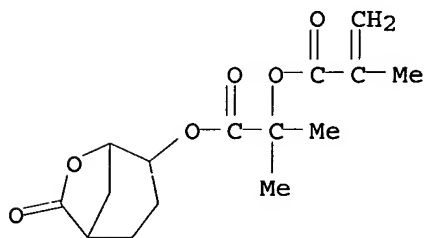
RN 460754-17-0 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethyl-2-oxo-2-[(7-oxo-6-oxabicyclo[3.2.1]oct-4-yl)oxy]ethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 460754-16-9

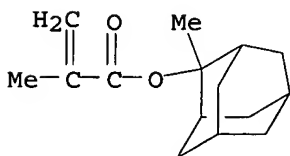
CMF C15 H20 O6



CM 2

CRN 177080-67-0

CMF C15 H22 O2



IC ICM C07C381-12

ICS C07D333-46; C07D409-06; C08K005-36; C08L033-04; C08L101-02;
G03F007-004; G03F007-039; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)

Section cross-reference(s): 35, 38

ST **pos resist** compn sulfonium salt compd acid
generator; photoacid alk sol resin pos photoresist compn

IT Photoresists
(UV; **pos.-working resist** composition containing
sulfonium salt compound as acid generator)

IT **Resists**
(**pos.-working resist** composition containing
sulfonium salt compound as acid generator)

IT 340964-24-1P 340964-44-5P 364736-20-9P 460754-12-5P
460754-13-6P 460754-14-7P 460754-15-8P **460754-17-0P**
460754-18-1P 460754-19-2P
(alkaline soluble resin contain in **pos.-working**
resist)

IT 144317-44-2 241806-75-7 301664-71-1 328006-70-8
460754-20-5
(photoacid; photoacid contained in **pos.-working**
resist composition)

IT 110-01-0, Tetrahydrothiophene 19169-90-5,
Bromomethylphenylsulfone 29420-49-3, Potassium
nonafluorobutanesulfonate
(preparation of sulfonium salt compound contained in **pos**
.-working resist composition)

L18 ANSWER 34 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:364226 HCAPLUS

DOCUMENT NUMBER: 136:393267

TITLE: **Positive-working resist**
compositions with high sensitivity and
resolution

INVENTOR(S): Fujimori, Toru; Tan, Shiro; Nakao, Hajime

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 43 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002139839	A2	20020517	JP 2000-332955	

2000
1031

PRIORITY APPLN. INFO.: JP 2000-332955

2000
1031

OTHER SOURCE(S): MARPAT 136:393267

AB The compns. contain photoacid generators (A), polymers (B) having
alicyclic hydrocarbon structures in the main or side chains and
good solubility in alkali developing agents by acid-induced decomposition,
and compds. (C) shown as RXC:OOH (R = F-containing hydrocarbyl; X =
F-free divalent linking group). The compns., useful for
microphotofabrication using ArF excimer laser in semiconductor
device fabrication, give resist patterns with good pattern
profiles and reduced standing wave effect.

IT 288303-55-9
(acid-decomposable polymer; **pos.-working photoresist** compns.)

with high sensitivity and reduced standing wave effect)

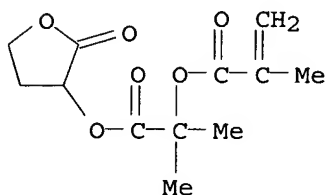
RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 288303-54-8

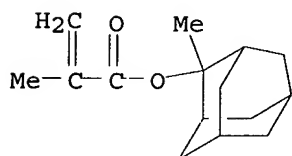
CMF C12 H16 O6



CM 2

CRN 177080-67-0

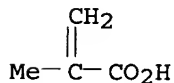
CMF C15 H22 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS C08K005-00; C08K005-095; C08K005-16; C08L057-00; G03F007-004;
H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

IT 195000-67-0 195154-83-7 216308-45-1, Methacrylic
acid-2-methyl-2-adamantyl methacrylate-mevalonic lactone
methacrylate copolymer 288303-55-9 297156-40-2
304441-22-3, Diethyleneglycol monomethyl ether
methacrylate-2-methyl-2-adamantyl methacrylate-mevalonic lactone

methacrylate copolymer 307976-27-8 324770-96-9 357413-69-5
357413-70-8 357413-71-9
(acid-decomposable polymer; pos.-working photoresist compns.
with high sensitivity and reduced standing wave effect)

L18 ANSWER 35 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:364225 HCAPLUS

DOCUMENT NUMBER: 136:393266

TITLE: **Positive-working resist**
compositions with high sensitivity and
resolution

INVENTOR(S): Fujimori, Toru; Tan, Shiro; Nakao, Hajime

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 45 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 2002139837	A2	20020517	JP 2000-332733	2000 1031
PRIORITY APPLN. INFO.: JP 2000-332733				2000 1031

OTHER SOURCE(S): MARPAT 136:393266

AB The compns. contain photoacid generators (A), polymers (B) having alicyclic hydrocarbon structures in the main or side chains and good solubility in alkali developing agents by acid-induced decomposition, and compds. (C) shown as RWC:OOB (R = F-containing hydrocarbyl; W = F-free divalent organic group; B = acid-decomposable group). The compns., useful for microphotofabrication using ArF excimer laser in semiconductor device fabrication, give resist patterns with good pattern profiles and reduced standing wave effect.

IT 288303-55-9
(acid-decomposable polymer; pos.-working photoresist compns.
with high sensitivity and reduced standing wave effect)

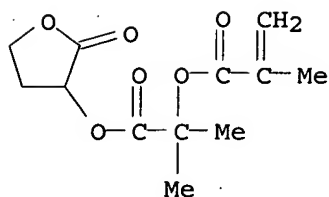
RN 288303-55-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethyl-2-oxo-2-
[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl 2-methyl-2-propenoate and
2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI)
(CA INDEX NAME)

CM 1

CRN 288303-54-8

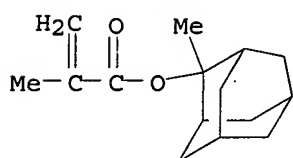
CMF C12 H16 O6



CM 2

CRN 177080-67-0

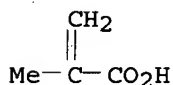
CMF C15 H22 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039
ICS C08K005-00; C08K005-10; C08K005-16; C08L101-02; G03F007-004;
H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

IT 195000-67-0 195154-83-7 216308-45-1, Methacrylic
acid-2-methyl-2-adamantyl methacrylate-mevalonic lactone
methacrylate copolymer 288303-55-9 297156-40-2
304441-22-3, Diethyleneglycol monomethyl ether
methacrylate-2-methyl-2-adamantyl methacrylate-mevalonic lactone
methacrylate copolymer 307976-27-8 324770-96-9 357413-69-5
357413-70-8 357413-71-9
(acid-decomposable polymer; pos.-working photoresist compns.
with high sensitivity and reduced standing wave effect)

L18 ANSWER 36 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2002:99076 HCAPLUS

DOCUMENT NUMBER: 136:175461

TITLE: Positive-working radiation-sensitive resist
composition suitable for subquartermicron
patterning

INVENTOR(S): Tamura, Kazutaka; Nio, Hiroyuki; Senoo,

PATENT ASSIGNEE(S): Masahide
 SOURCE: Toray Industries, Inc., Japan
 Jpn. Kokai Tokkyo Koho, 10 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002040661	A2	20020206	JP 2000-221889	2000 0724
PRIORITY APPLN. INFO.:			JP 2000-221889	2000 0724

AB The invention relates to a pos.-working radiation-sensitive resist composition suitable for a subquartermicron order patterning to fabricate integrate circuits and lithog. masks, wherein the resist composition comprises (a) a polymer comprising structural repeating units of $\text{CH}_2:\text{C}(\text{CO}_2\text{A})\text{X}$ [$\text{X} = \text{C1-6-alkyl, halo, CN; A} = \text{organic group}$] and $\text{CH}_2:\text{C}(\text{CO}_2\text{B})\text{Y}$ [$\text{Y} = \text{C1-6-alkyl, halo, CN; B} = \text{alicyclic alkyl}$], and having a glass transition point Tg of $80-150^\circ$, and (b) a radiation-acid generator. The resist composition is especially suitable for an electron-beam or x-ray lithog.

IT 395683-50-8P

(pos.-working electron beam resist composition suitable for subquartermicron patterning)

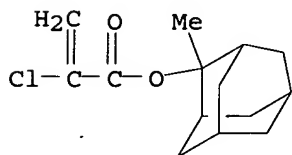
RN 395683-50-8 HCAPLUS

CN 2-Propenoic acid, 2-chloro-, 1-methyl-1-phenylethyl ester, polymer with 2-methyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-chloro-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 367931-36-0

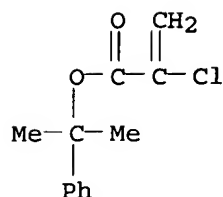
CMF C14 H19 Cl O2



CM 2

CRN 100653-95-0

CMF C12 H13 Cl O2



IC ICM G03F007-039
 ICS C08F002-50; C08F220-12; C08F220-42; C08L005-00; C08L033-04;
 C08L033-18; H01L021-027
 CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38, 76
 IT Electron beam **resists**
 Positive photoresists
 X-ray **resists**
 (pos.-working radiation-sensitive resist composition
 suitable for subquartermicron patterning)
 IT 395683-50-8P 396095-01-5P 396095-04-8P
 (pos.-working electron beam **resist** composition suitable
 for subquartermicron patterning)

L18 ANSWER 37 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:356530 HCAPLUS

DOCUMENT NUMBER: 134:346479

TITLE: **Positive-working resist**
 composition

INVENTOR(S): Kodama, Kunihiro; Sato, Kenichiro; Aogo,
 Toshiaki

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 34 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
JP 2001133978	A2	20010518	JP 1999-317147	

1999

1108

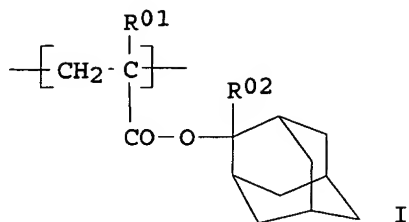
PRIORITY APPLN. INFO.: JP 1999-317147

1999

1108

OTHER SOURCE(S): MARPAT 134:346479

GI



AB The **pos.**-working **resist** composition comprises (A) a resin which has repeating units I and $[H_2C-CR_{01}\{C(:O)OWLc\}]$ (R_{01} = H, C1-4 alkyl, etc.; R_{02} = C1-4 alkyl; W = single bond, alkylene, etc.; Lc = substituent) whose solubility rate increases in an alkaline developer by reacting with an acid and (B) ≥ 1 photoacid generating a sulfonic acid. This **pos.**-working **resist** composition showed sufficient sensitivity to a 193-nm ArF excimer laser.

IT 297156-52-6

(**pos.**-working **resist** composition containing)

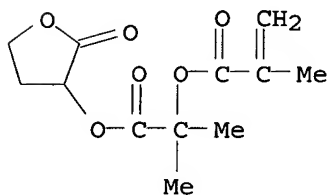
RN 297156-52-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl ester, polymer with 2-ethyltricyclo[3.3.1.1^{3,7}]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 288303-54-8

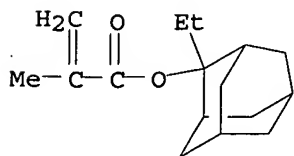
CMF C12 H16 O6



CM 2

CRN 209982-56-9

CMF C16 H24 O2



IC ICM G03F007-039

ICS C08F020-12; C08L033-04; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
 Section cross-reference(s): 38

IT Photoresists
 (resin and photoacid contained in **pos.**-working
resist composition)

IT 144089-15-6 144317-44-2 194999-85-4 241806-75-7
 241806-76-8 258341-95-6 301525-08-6 338445-24-2
 338445-26-4 338445-27-5 338445-29-7 338445-30-0
 338445-31-1 338445-33-3 338445-34-4
 (photoacid; **pos.**-working **resist** composition
 containing)

IT 177080-68-1 220196-49-6 250378-10-0 288303-52-6
 297156-52-6 307976-27-8 332877-28-8
 332877-29-9 332877-30-2 332877-31-3 332877-33-5
 332877-34-6 332877-35-7 332877-36-8 332877-37-9
 (**pos.**-working **resist** composition containing)

L18 ANSWER 38 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:261176 HCAPLUS

DOCUMENT NUMBER: 134:287866

TITLE: **Positive-working resist**
 composition

INVENTOR(S): Sato, Kenichiro; Kodama, Kunihiro; Aoai,
 Toshiaki

PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan

SOURCE: Eur. Pat. Appl., 114 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
-----	----	-----	-----	
EP 1091248	A1	20010411	EP 2000-121277	2000 1006
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001109153	A2	20010420	JP 1999-285761	1999 1006
JP 2001264985	A2	20010928	JP 2000-80519	2000 0322
US 6602646	B1	20030805	US 2000-684888	2000 1006
US 2003073029	A1	20030417	US 2001-22363	2001 1220
US 6670095	B2	20031230		
PRIORITY APPLN. INFO.:			JP 1999-285761	A 1999 1006
			JP 2000-80519	A 2000

0322

US 2000-684888

A3

2000

1006

AB The present invention provides a high sensitivity chemical amplified **pos.-working resist** composition which eliminates edge roughness on pattern and provides an excellent resist pattern profile. A novel **pos.-working resist** composition is provided comprising (A) a resin containing an alkali-soluble group protected by at least one of moieties containing alicyclic hydrocarbon group and having a monomer component content of 5% or less of the total pattern area as determined by gel permeation chromatog. (GPC), which increases in its solution velocity with respect to an alkaline developer by the action of an acid and (B) a compound which is capable of generating an acid by irradiation with an active ray or radiation.

IT 297156-52-6P

(acid-decomposable resin in **pos.-working resist** composition)

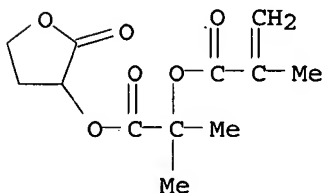
RN 297156-52-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl ester, polymer with 2-ethyltricyclo[3.3.1.1.3,7]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 288303-54-8

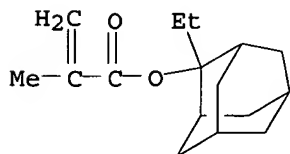
CMF C12 H16 O6



CM 2

CRN 209982-56-9

CMF C16 H24 O2



IC ICM G03F007-039

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

L18 ANSWER 39 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:768008 HCAPLUS
DOCUMENT NUMBER: 133:342484
TITLE: **Positive-working resist**
composition
INVENTOR(S): Sato, Kenichiro; Kodama, Kunihiro; Aogo,
Toshiaki
PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 38 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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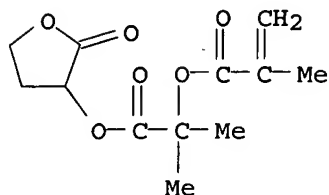
JP 2000305271	A2	20001102	JP 1999-114082	1999 0421
PRIORITY APPLN. INFO.:			JP 1999-114082	1999 0421

IT	304441-26-7	
	(pos.-working resist composition)	
RN	304441-26-7	HCAPLUS
CN	2-Propenoic acid, 2-methyl-, 1,1-dimethyl-2-oxo-2-[(tetrahydro-2-oxo-3-furanyl)oxy]ethyl ester, polymer with 2-ethyltricyclo[3.3.1.1 ^{3,7}]dec-2-yl 2-methyl-2-propenoate and 2-(2-methoxyethoxy)ethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)	

CM 1

CRN 288303-54-8

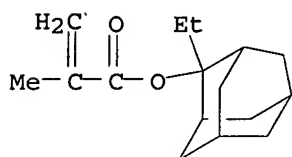
CMF C12 H16 O6



CM 2

CRN 209982-56-9

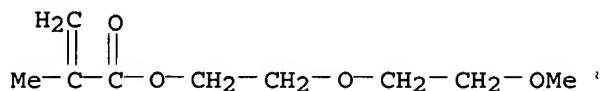
CMF C16 H24 O2



CM 3

CRN 45103-58-0

CMF C9 H16 O4



IC ICM G03F007-039

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 35, 38, 76

IT Photoresists

(pos.-working resist composition)

IT 10409-07-1 22040-25-1

(photoacid; pos.-working resist composition)

IT 304441-21-2P

(pos.-working resist composition)

IT 304441-22-3 304441-23-4 304441-25-6 304441-26-7

304441-28-9 304441-29-0 304441-31-4 304465-42-7

304465-44-9 304465-46-1 304465-48-3

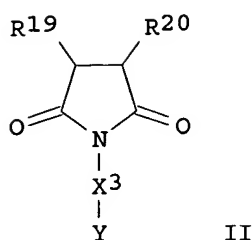
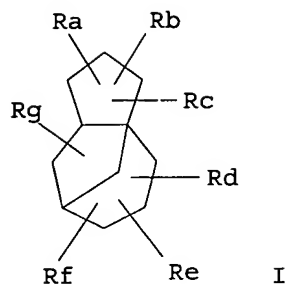
(pos.-working resist composition)

L18 ANSWER 40 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:115244 HCAPLUS

DOCUMENT NUMBER: 132:173393
 TITLE: Alkali-developing positive photosensitive resin compositions
 INVENTOR(S): Kodama, Kunihiko; Sato, Kenichiro; Aogo, Toshiaki
 PATENT ASSIGNEE(S): Fuji Photo Film Co., Ltd., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 34 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000047386	A2	20000218	JP 1998-211137	1998 0727
KR 2000011988	A	20000225	KR 1999-30510	1999 0727
US 6291130	B1	20010918	US 1999-361568	1999 0727
US 6517991	B1	20030211	US 2000-606681	2000 0630
US 2003044718	A1	20030306	US 2002-176067	2002 0621
US 2004161697	A2	20040819		
US 6818377	B2	20041116		
PRIORITY APPLN. INFO.:			JP 1998-211137	A 1998 0727
			JP 1998-263392	A 1998 0917
			JP 1999-6662	A 1999 0113
			JP 1999-186809	A 1999 0630
			US 1999-361568	A3 1999 0727
			US 2000-606681	A3 2000 0630

GI



AB The compns. contain (A) compds. generating acid by irradiation of active light beam or radiation and (B) acid-decomposable alkali-developing resin having ≥ 1 polycyclic aliphatic group(s) I (Ra-g = (cyclo)alkyl, alkenyl, alkynyl, halo, cyano, R6OR7, R8CO2R9, R10CONR11R12, R13OCOR14, may be substituted; R7, R9 = H, (cyclo)alkyl, alkenyl, groups increasing solubility in alkaline developing agent by decomposition with acid, may be substituted; R11-12, R14 = H, (cyclo)alkyl, alkenyl, may be substituted; R11 + R12 may form a ring; R6, R8, R10, R13 = single bond, (cyclo)alkylene, alkenylene, may be substituted; Ra-g may be :O, :S when bonded on same C, may bond when on neighboring Cs, may form rings). The acid-decomposable alkali-developing resin may have structural repeating units (CH2CR15X1Y), (CR16R17CR18X2Y), or II (R15, R16, R18-20 = H, halo, cyano, (halo)alkyl; R17 = cyano, CO2R27, CONR28R29; X1-3 = single bond, may be substituted, (cyclo)alkylene, alkenylene, O, SO2, OCOR30, CO2R31, CONR32R33; R27 = H, may be substituted, (cyclo)alkyl, alkenyl, groups increasing solubility in alkaline developing agent by decomposition with acid; R28, R29, R32 = H, may be substituted, (cyclo)alkyl, alkenyl; R28 + R29 may form a ring; R30-31, R33 = single bond, (cyclo)alkylene, alkenylene, may form bivalent groups with ether, ester, amide, urethane, or ureide groups; Y = I). The compns. are especially suitable for exposure with far UV. The compns. have excellent dry-etch resistance and give patterns with high sensitivity and resolution

IT 258518-75-1P

(alkali-developing far UV pos. resists)

RN 258518-75-1 HCAPLUS

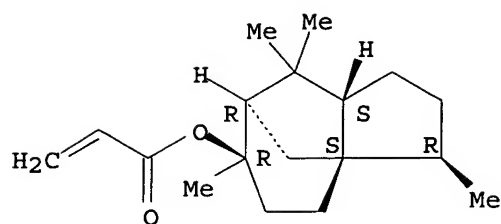
CN 2-Propenoic acid, 2-methyl-, polymer with 1-cyclopropyl-1-methylethyl 2-methyl-2-propenoate and [3R-(3 α , 3 β , 6 α , 7 β , 8 α)]-octahydro-3,6,8,8-tetramethyl-1H-3a,7-methanoazulen-6-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 132603-00-0

CMF C18 H28 O2

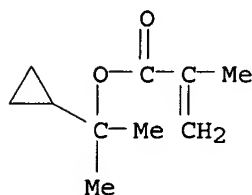
Absolute stereochemistry.



CM 2

CRN 113686-68-3

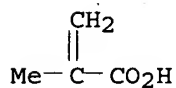
CMF C10 H16 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



IC ICM G03F007-039

ICS C08F002-50; G03F007-30; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and
Photographic and Other Reprographic Processes)
Section cross-reference(s): 38

IT Positive photoresists
(UV, far UV; alkali-developing far UV pos.
resists)

IT 66003-78-9, Triphenylsulfonium triflate
(acid generator; alkali-developing far UV pos.
resists)

IT 258518-75-1P 258518-76-2P 258518-77-3P
258518-79-5P 258518-81-9P 258518-83-1P 258518-88-6P
258518-90-0P 258518-94-4P 258518-97-7P
(alkali-developing far UV pos. resists)

IT 77-53-2, (+)-Cedrol 258519-02-7
(reaction with (meth)acrylic acid chloride; alkali-developing
far UV pos. resists)

IT 814-68-6, Acrylic acid chloride 920-46-7, Methacrylic acid
chloride
(reaction with polycyclic aliphatic compds.; alkali-developing far

UV pos. resists)

L18 ANSWER 41 OF 41 HCAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:277407 HCAPLUS

DOCUMENT NUMBER: 129:21468

TITLE: Positive-working resist
compositionINVENTOR(S): Haneda, Hideo; Sato, Kazufumi; Komano,
Hiroshi; Nakayama, Toshimasa

PATENT ASSIGNEE(S): Tokyo Ohka Kogyo Co., Ltd., Japan

SOURCE: Jpn. Kokai Tokkyo Koho, 10 pp.

CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 10115925	A2	19980506	JP 1997-200017	1997 0725
US 5929271	A	19990727	US 1997-912123	1997 0815
US 6077644	A	20000620	US 1998-207202	1998 1208
JP 2004339521	A2	20041202	JP 2004-171742	2004 0609
PRIORITY APPLN. INFO.:			JP 1996-218803	A 1996 0820
			JP 1997-200017	A3 1997 0725
			US 1997-912123	A3 1997 0815

AB In the title resist composition containing an acrylic resin and an acid generator, the acrylic resin, capable of changing its alkaline-solubility by acid, is a homopolymer or copolymer containing a (meth)acrylic acid ester with hydroxybicyclo[3.1.1]heptane or its lower alkyl substituted. The resist composition shows high transparency to ArF excimer laser beam, and superior sensitivity, resist pattern profile and dry-etching resistance and adhesion.

IT 207794-97-6P

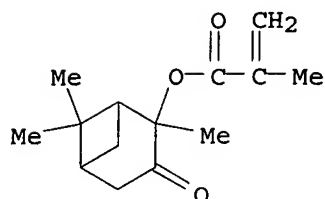
(prepared for pos.-working resist composition)

RN 207794-97-6 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, polymer with 1,1-dimethylethyl
2-methyl-2-propenoate and 2,6,6-trimethyl-3-oxobicyclo[3.1.1]hept-
2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

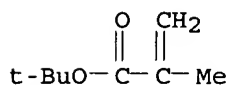
CM 1

CRN 207794-96-5
CMF C14 H20 O3



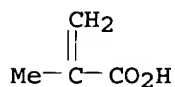
CM 2

CRN 585-07-9
CMF C8 H14 O2



CM 3

CRN 79-41-4
CMF C4 H6 O2



IC ICM G03F007-039
ICS H01L021-027; C08F020-04; C08F020-12; C08F020-28
CC 74-5 (Radiation Chemistry, **Photochemistry**, and
Photographic and Other Reprographic Processes)
ST **pos** working **resist** compn acrylic resin
IT 207794-96-5P
(prepared as specified monomer for acrylic resin contained in
pos.-working **resist** composition)
IT 207794-97-6P
(prepared for **pos.**-working **resist** composition)
IT 920-46-7, Methacryloyl chloride 10136-65-9, 2-Hydroxy-3-pinane
(preparation of specified monomer for acrylic resin contained in
pos.-working **resist** composition)